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Prototype Procedures to Describe Army Jobs

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Matthew Allen, and Deirdre Knapp**
Human Resources Research Organization

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and Kimberly Owens**
U.S. Army Research Institute

July 2010

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PROTOTYPE PROCEDURES TO DESCRIBE ARMY JOBS

EXECUTIVE SUMMARY

Research Requirement:

Descriptions of Army jobs or Military Occupational Specialties (MOS) provide the foundation for Army personnel management, from entry-level selection and classification to training and performance management. However, existing job analysis approaches used in the Army have a number of limitations. Consequently, existing job analysis approaches make conducting Army research to enhance personnel management both challenging and costly. The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) convened a six-member Army Classification Research Panel (ACRP) in 2007 to recommend solutions to this issue. The ACRP formulated a series of recommendations grounded in occupational or job analysis and proposed a long-term research roadmap for examining these recommendations (Campbell et al., 2007). This project represents the first step in that roadmap. The purpose of this project was to develop and field test a new prototype job analysis approach, customized to the Army, for use in describing entry-level enlisted jobs.

Procedure:

Job analysis questionnaires were developed to measure work (work activities and work context) and worker-oriented domains (work abilities, interests, values, and styles) useful for describing similarities and differences in entry-level MOS. Participants in the field test were junior enlisted Soldiers (E2-E4s) and noncommissioned officers (NCOs; E5-E7s) in six MOS: (a) Infantryman (11B), (b) Armor Crewman (19K), (c) Signal Support Specialist (25U), (d) Light-Wheel Vehicle Mechanic (63B), (e) Military Police (31B), and (f) Motor Transport Operator (88M).

The job analysis questionnaires were administered online using the InterForm software from ARI's Occupational Analysis (OA) program. To restrict the administration time per participant to 20-25 minutes (or less), the questionnaires were administered using a matrix sampling approach (i.e., not all participants completed all questionnaires). A total of four blocks of questionnaires were administered to participants.

Completed questionnaires were received from a total of 1,390 Soldiers (1,111 supervisors and 277 incumbents). The response rates varied by MOS and block, but were generally less than 10%.

Findings:

Overall, the results of the field test were encouraging, as evidenced by the following:

The multi-rater reliability estimates were consistently .80 or greater, with many .90 and above, indicating that the mean ratings evidence sufficient reliability to support their use in operational decision-making (e.g., clustering MOS). These estimates were generally comparable

to or exceeded those obtained on corresponding questionnaires administered to Army supervisors during an evaluation of the use of the existing O*NET system to describe Army jobs. In particular, the estimates for worker abilities obtained using the prototype approach were consistently higher than those observed using the O*NET work abilities questionnaire (a mean multi-rater ICC of .95 using the prototype approach versus .75 for the O*NET).

Overall, there was greater within group variability than between group variability, indicating that most of the systematic variance in ratings resulted from yet-to-be examined factors (e.g., duty position), rather than rater type. Differences between incumbent and supervisor ratings, on average, were generally low. The absolute standardized mean differences in ratings between the two rater types were, on average, about one-third of a standard deviation or smaller (mean $|d| \leq .33$), compared to the standard deviations within any rater type, which were typically .70 or greater. Further, there was no evidence that the differences followed a systematic pattern (i.e., one group consistently rated the descriptors within a given domain higher or lower than the other group). Similarly, the correlations in the ratings profile between the two rater types were generally high, on average (mean r of .53 or greater), with correlations in the .80s for work activities, evidence that incumbents and supervisors were generally consistent in the relative importance they assigned the job descriptors within any given domain.

Ratings from the questionnaires demonstrated promise for differentiating among MOS, although the differences were small in several instances. With the exception of work styles and values, the mean correlations in rating profiles across MOS for any single domain were consistently lower, on average, than the correlations between rater types within an MOS (with differences in mean r ranging from .09 to .22). A similar pattern of results, however, was not evident when examining the average absolute standardized mean differences, where the mean differences between MOS were generally comparable to or lower than those reflecting differences between rater types within an MOS (the differences in mean $|d|$ ranged from .02 to .22). Among the worker-oriented questionnaires, the ones demonstrating the greatest potential, on average, for differentiating across MOS were worker abilities and interests, at least for this particular sample of MOS (Abilities: mean $r = .55$, mean $|d| = .32$; Interests: mean $r = .67$; mean $|d| = .34$).

Participants' reactions to the questionnaires and their content were generally positive, both in terms of their ease of use and their relevance for describing their MOS. About 62% or greater of the participants, on average, found the questionnaires easy to use and the instructions and content clear, with upwards of 87% of participants reacting that way to the work activities questionnaires. Similarly, 62% or more of the participants, on average, rated the questionnaires as useful and relevant to describing their MOS, with upwards of 88% of participants rating the work activities questionnaires in that manner. Overall, participants reacted more favorably to the work-oriented questionnaires, in particular the work activities questionnaire, than the worker-oriented questionnaires. This finding is not surprising, given that the work-oriented questionnaires, specifically those measuring work activities, contained the most job-specific content.

Although the results of the field test were generally promising, this research was not without its limitations. Specifically:

The response rates to the questionnaires were generally low, particularly for incumbents. Among incumbents, response rates were typically 5% or less. The response rates among supervisors tended to be two to three times that rate (10% to 15%), with a high close to 31%. There were also notable differences in response rates by MOS, with 25U generally evidencing the highest response rates and 11B and 19K demonstrating the lowest response rates. Although low, these response rates were consistent with those typically encountered by the Army's Occupational Analysis Program (OAP).

The ratings collected did not permit an examination of the similarities and differences in work activities by MOS. Although ratings were collected on work activities during the field test, these data were on the lower-order (or more job-specific) activities. As a result, no data were available to evaluate the psychometric properties and discriminant validity associated with a questionnaire measuring higher-order (or cross job) descriptors. However, some evidence for the potential value of such a measure, albeit indirect, was evident in the results for the work interests questionnaire. The work interests questionnaire measured the importance of interests in performing various higher-order work activities required for the job. The content of the questionnaire was based on a slightly modified version of the O*NET's Generalized Work Activities (GWA) taxonomy. In general, the work interests measure evidenced higher multi-rater reliability estimates, greater discriminant validity, and more favorable participant reactions than the other worker-oriented questionnaires.

Although the evidence for discriminant validity was promising, the differences in ratings by MOS from any single domain were generally small. For example, the average absolute standardized mean differences by MOS ranged from .18 (Work Context and Work Values) to .34 (Work Interests). There are several potential explanations for this finding: (a) the nature of the MOS sampled; (b) the use of importance ratings, as opposed to level ratings or some alternative kind of rating exercise with greater potential to differentiate across MOS; (c) the questionnaires contained a number of items not useful for differentiating across MOS, or at least this particular sample of MOS; and (d) the use of web-based surveys to collect ratings, as opposed to some alternative data collection method (e.g., a workshop).

Utilization and Dissemination of Findings:

Based on the results of the field test, the next recommended step is to expand it to a larger sample of MOS, as outlined in the ACRP's research roadmap (Campbell et al., 2007). In the near-term, collecting ratings on a larger sample of MOS would potentially serve two purposes: (a) to develop MOS clusters that could be used to select MOS to target in future criterion-related validation research (e.g., to examine the classification potential of new predictor measures); and (b) to develop or to identify end-of-training criteria that sufficiently support the Army's personnel classification research, but require fewer resources to construct and to field (e.g., occupational judgment tests). In the long term, collecting these ratings would enable the Army to test procedures for generalizing or transporting criterion-related validation evidence obtained for a smaller, focal sample of MOS to a larger sample (e.g., to facilitate the development or updating of prediction equations to be used in classifying new Soldiers).

For the purposes of meeting the near-term objective of clustering MOS, this expanded sample of MOS would need to be larger than the number of focal MOS to be sampled in the

planned criterion-related validation research. This sample would preferably comprise 20-30 jobs. Accordingly, job analysis data would need to be collected from an additional 45-55 MOS to ensure a sufficiently representative number to meet this goal. Assuming that only cross-job descriptors were used so none of the questionnaires would be MOS-specific, this could be a feasible next step.

PROTOTYPE PROCEDURES TO DESCRIBE ARMY JOBS

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PROTOTYPE PROCEDURES TO DESCRIBE ARMY JOBS

I. Introduction and Project Objectives

Background

Describing Army jobs or Military Occupational Specialties (MOS) provides the foundation for Army personnel management, from entry-level selection and classification to training and performance management. However, existing operational approaches to analyze and describe Army MOS have several limitations.

- They vary within and across MOS. These differences are evident in the descriptors used, as well as the process used to describe them. As a result, every MOS “seems” different. Sometimes the same MOS “seems” different.
- They sometimes capture information that is too detailed or too specific to be useful for a given personnel management application. Other times these approaches capture information that is not descriptive enough. Further, the level of detail varies considerably both across and within MOS.
- They sometimes miss important information about the requirements of the MOS (e.g., non-technical work activities, worker-oriented characteristics).

Consequently, existing job analysis approaches make conducting Army research to enhance personnel management both challenging and costly. The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) convened a six-member Army Classification Research Panel (ACRP) in 2007 to recommend solutions to these limitations; limitations that have and continue to carry significant implications for conducting enlisted classification research (e.g., collecting criterion data on a sufficiently representative sample of MOS).¹

The ACRP considered a number and diverse range of strategies and solutions to these limitations, ranging from occupational or job analysis to criterion measurement development to analytic methods for generalizing or transporting predictive validity evidence.² They concluded that a viable, long-term solution to these limitations required a comprehensive, evidence-based approach that addressed all these areas. The ACRP’s deliberations resulted in a series of recommendations and a long-term roadmap of research activities designed to examine and inform one or more of these recommendations (see Figure 1). The first step in that roadmap was to develop and field test a standardized approach for describing entry-level jobs. This job analysis approach (or system) would possess certain features (e.g., cross-job descriptors customized to the Army context, work activity descriptors at multiple levels of description) and could be implemented Army-wide. The ACRP concluded that having such an approach would provide the necessary foundation for future research efforts to advance the Army’s classification system from clustering MOS to developing new end-of-training criteria to generalizing or transporting predictive validity estimates across MOS.

¹ The results of the ACRP’s deliberations and their recommendations can be found in Campbell, McCloy, McPhail, Pearlman, Peterson, Rounds, and Ingerick (2007).

² Throughout this report, “occupational analysis,” “work analysis,” and “job analysis” are used interchangeably.

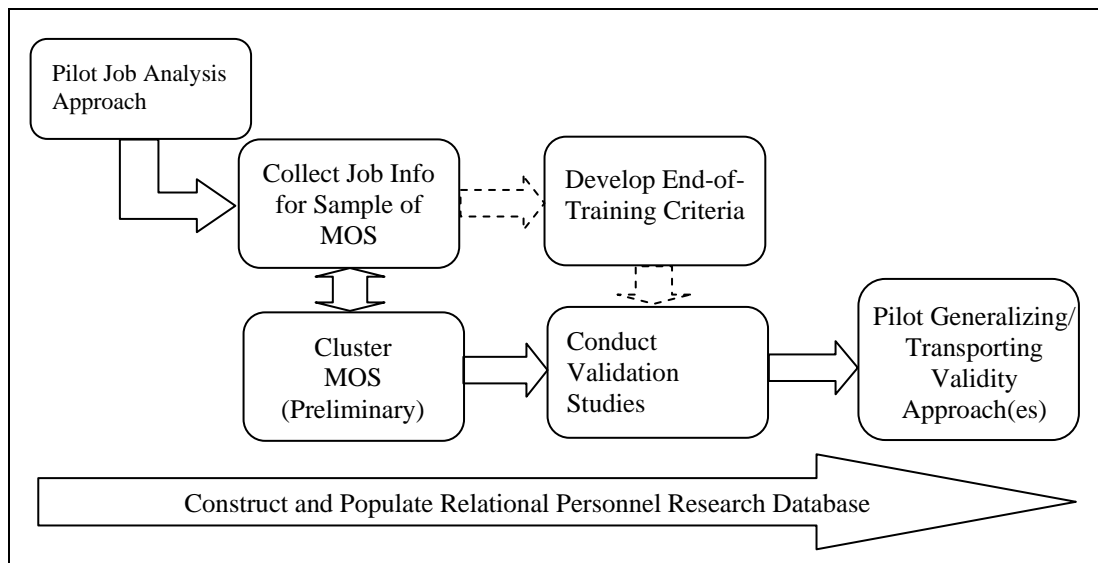


Figure 1. Proposed near-term agenda and ACRP proposed roadmap

Accordingly, ARI has undertaken two projects to investigate and evaluate valid approaches for describing MOS. The first of these projects, *Evaluating the O*NET Occupational Analysis System for Army Competency Development*, examined the utility of the existing Occupational Information Network (O*NET) for describing entry-level enlisted and officer jobs (Russell et al., 2008). The second of these projects, which is the focus of this report, involved developing, piloting, and field testing a prototype job analysis approach for use in describing entry-level enlisted MOS, using standardized descriptor taxonomies and questionnaires customized to the Army.

Project Objectives

The primary purpose of this project was to develop and field test a prototype job analysis approach for describing Army jobs. Consistent with the roadmap proposed by the ACRP, the specific objectives of this effort were twofold:

- To design, develop, and field test a prototype job analysis approach that (a) sufficiently describes similarities and differences in Army MOS, and (b) can be implemented Army-wide and at a reasonable cost.
- To develop and start to populate a supporting relational database that would systematically collect and store job analysis data and other results (e.g., criterion-related validity estimates), where feasible. The database will provide useful information toward meeting the Army's personnel management objectives. The initial application would be to support new Soldier selection and classification.

Overview of Report

This report is organized as follows. First, we discuss the reasons for and the essential features of the proposed job analysis approach. Second, we describe development of the proposed approach and the questionnaires. Third, we summarize administration of the questionnaires in the field test. Fourth, we discuss the results and findings of the field test. The report concludes with a summary of the major findings of the field test and recommendations for next steps.

II. Reasons for and Essential Features of an Army-Specific Job Analysis Approach

Why an Alternative Army-Specific Approach?

Having job analysis data represents an essential first step in meeting the Army's needs for research on Soldier classification and other personnel issues. The ACRP observed that job analysis approaches currently in use operationally in the Army, while useful for their intended purposes (e.g., designing MOS-specific training programs), do not provide the information needed for classification and personnel research for the reasons previously cited (e.g., lack of standardization across MOS, incomplete or missing information on important job requirements). The ACRP considered but concluded that other existing job analysis systems, such as the O*NET, could provide the basis for an Army job analysis system and that there were advantages to linking Army content to existing systems. However, these existing systems were not likely to fully meet the Army's needs in their current form since they were developed to describe civilian, not military, jobs. In sum, the ACRP determined that existing systems available to the Army for describing entry-level MOS:

- Miss important requirements useful for describing Army jobs (e.g., combat-related work activities or work context characteristics unique to the Army or a military setting);
- Include descriptors that are not relevant for describing Army jobs or use terminology (or examples) that does not accurately capture entry-level Army job requirements; and
- Fail to capture job information at multiple levels of description, so as to serve the Army's need for information for multiple purposes (e.g., entry-level selection and classification, training, performance measurement).

What Kind of an Approach Does the Army Need?

For these reasons, the ACRP concluded that the Army should develop a new job analysis system that functions effectively within the context of the Army. The ACRP recommended that the system include the following features:

- A common language, customized to the Army context, for describing similarities and differences in MOS. This common language should consist of a reasonably comprehensive set of descriptors representing targeted work (i.e., work activities, work or job context, machine-tools-equipment-technology) and worker-oriented (i.e., knowledge,

skills, abilities, work values, interests) domains. These descriptors must be sufficient for describing any MOS.

- Cross-MOS descriptors for use in identifying similarities and differences across MOS.
- Descriptors, in particular work activities (i.e., what Soldiers do on a job), at multiple levels of generality that can be organized hierarchically to support the Army's needs for job information at multiple levels of aggregation.
- The flexibility to combine descriptors or data on descriptors from multiple, traditionally independent domains, and in new or innovative ways that enable the identification of similarities and differences in Army jobs.
- A reasonable cost to implement the system.
- Sufficient flexibility so that the descriptors can be refined and updated, as needed. The system needs to include a mechanism for adding new descriptors, or modifying existing descriptors, as job information on a larger sample of MOS is collected or MOS requirements change over time.
- A foundation based on descriptor taxonomies, developed or refined using a combined top-down and bottom-up approach, as recommended by the ACRP.
- A relational database that collects, organizes, and stores job analysis data systematically over time and that facilitates the integration of these data with other relevant personnel data (e.g., criterion-related validity estimates).

In the near-term, having a job analysis system with the above features will enable the Army to:

- Cluster MOS to guide the sampling of MOS for criterion-related validation studies;
- Demonstrate the relevance of, or refine, existing criteria for use in criterion-related validation studies;
- Develop new, alternative criteria that target critical MOS-specific and cross-MOS dimensions useful for differentiating MOS;
- Cluster MOS to produce experimental job families that maximize the (observed) classification gains of targeted predictors (e.g., non-cognitive predictors);
- Cluster MOS to estimate and determine the limits of generalizing (or transporting) criterion-related validity estimates, or prediction equations, across MOS; and
- Generalize, or transport, criterion-related validity estimates or performance prediction equations for a sample of MOS to other MOS sharing the same requirements for purposes of selecting predictor batteries that maximize classification gains.

Over time, having a job analysis system with the above features will enable the Army to:

- Cluster MOS to produce new, alternative job families for operational use under the Army's current enlisted classification system that maximize the classification gains of targeted predictors;
- Cluster MOS to investigate potential enhancements to the operational classification system (e.g., a two-stage procedure, whereby recruits are first assigned to broad clusters of MOS on the basis of their interests, then to a specific MOS within a cluster based on their abilities); and

- Document changes in MOS over time and their implications for the operational use, or continued use, of previously collected criterion-related validity estimates (or prediction equations) for classifying new recruits to MOS.

III. Development of Prototype Army Job Analysis Approach

Selection of Job Descriptor Taxonomies

Central to the proposed job analysis system are job descriptors for use in characterizing the similarities and differences in Army MOS. Table 1 summarizes the potential universe of job descriptor categories and domains useful for serving the Army's enlisted selection and classification needs, based on the O*NET's Content Model (Peterson, Mumford, Borman, Jeanneret, & Fleishman, 1999) with representative examples specific to the Army.

Because of the resources available, it was not feasible in this prototype project to formulate and collect data on descriptors encompassing all of the categories and domains referenced in Table 1. As a result, some prioritization was needed. Many of the research activities comprising the ACRP's roadmap involve, or require, clustering MOS on the basis of one or more targeted descriptor domains. Table 2, taken from the ACRP report (2007; see pp. 10-12), matches the descriptor domain(s) most useful to advancing each of these activities, ordered in descending order of priority. As evident from the table, work activities, at any level of description, emerge as important to accomplishing several of these activities, followed by one or more worker-oriented characteristics (i.e., occupation-specific knowledges and skills, work interests or values, abilities). Accordingly, the following job descriptor domains were identified by the ACRP as most critical for development (in descending order of priority):

- Work activities (to be defined at a minimum of two levels of specificity)
- Work (or organizational) context and related personal characteristics (i.e., interests, values, and temperament [or work styles])
- Occupation-specific knowledges and skills, to include weapons-equipment-tools-technology
- Worker aptitudes and abilities

Guiding Design Principles for Developing Prototype Army Job Descriptors

There were a number of issues to be addressed in the development of the prototype Army job descriptors. The implications of these issues should not be understated given the objectives of this initial effort. These issues included:

- Which job descriptor domains should be included? For each domain targeted, at what and how many levels of generality should the descriptors be specified? At what level of detail should the descriptors be specified?
- Should descriptors reflecting requirements common to all MOS (e.g., common, Army-wide tasks) be included?
- Should descriptors include MOS-specific content unique to an MOS (e.g., MOS-specific tasks, tools and technology, education and training requirements)?

Table 1. The Potential Universe of Work and Worker-Oriented Descriptors Useful for Serving the Army's Enlisted Classification and Selection Needs

Category/ Domain	Subdomain	Definition	Representative Examples (Specific to Army)
<i>Work-Oriented</i>			
Work Activities	Occupation/job-specific technical	The major duties and key work activities that constitute the core technical requirements of a job and that differentiate one Army job, or cluster of jobs, from another.	<ul style="list-style-type: none"> • Maintains a motor vehicle • Transports cargo and personnel • Loads/unloads passengers for transport in truck • Performs tie-down procedures
	Non-occupation/job-specific technical	The major duties and key work activities constituting the core technical requirements that are not unique to a job but are required by most or all jobs in the Army.	<ul style="list-style-type: none"> • Process casualties • Administer first aid • Install and recover mines • Evade and survive capture
	Non-technical	The major duties and key work activities that are non-technical, and typically intra- and inter-personal, in nature.	<ul style="list-style-type: none"> • Demonstrates physical fitness • Demonstrates teamwork • Exhibits effort and initiative on the job • Exhibits integrity and discipline on the job • Relates to and supports peers • Solves problems and makes decisions
Work Context	Job context	Characteristics of the immediate job environment (e.g., physical, motivational, and social) that influence the nature of work performed.	<ul style="list-style-type: none"> • Communication methods • Job hazards • Physical setting and proximity • Situational constraints (e.g., time pressure)
	Organizational or unit context	Characteristics of the organization, or unit within the organization, that influence the work performed.	<ul style="list-style-type: none"> • Culture/climate • (De)centralization of decision-making • Team-based structure
Weapons-Equipment-Tools-Technology		Weapon(s), tool(s), equipment, and/or technology needed to perform the technical and non-technical requirements of a job, or cluster of jobs.	<ul style="list-style-type: none"> • M16A2 rifle • .50 caliber machine gun • Hoist • Wrench • Air compressor

Table 1. (continued)

Category/ Domain	Subdomain	Definition	Representative Examples (Specific to Army)
<i>Work-Oriented (continued)</i>			
Occupational and Workforce Characteristics	Minimum entry requirements and training difficulty	Information on the minimum entry requirements of job and difficulty of its technical training.	<ul style="list-style-type: none"> • Minimum entry requirements (e.g., Aptitude Area (AA) cut scores) • Passing scores for advanced technical training • Completion/graduation rates from advanced training
	Mission importance	Information on the job's importance and priority to the Army.	<ul style="list-style-type: none"> • Job quotas (or accession targets) • Deployment/OPTEMPO rates
	Job family/cluster membership	Information on the job's existing family or cluster membership.	<ul style="list-style-type: none"> • Aptitude Area (AA) family • Career Management Field (CMF)
	Internal workforce	Current characteristics of job incumbents.	<ul style="list-style-type: none"> • Numbers and demographics of current job incumbents • Gains-promotions-losses (in job)
<i>Worker-Oriented</i>			
Personal Characteristics	Occupational or work interests	Characteristic preferences for, or likes and dislikes regarding, specific work- related requirements.	<ul style="list-style-type: none"> • Realistic • Artistic • Investigative • Social • Enterprising • Conventional
	Occupational or work values	Characteristic goals, beliefs, or ideals regarding specific work- related requirements.	<ul style="list-style-type: none"> • Autonomy • Creativity • Feedback • Independence • Team orientation • Variety
	Work temperament or styles	Characteristic behavioral tendencies, habits, or styles reflecting preferences for specific work-related requirements.	<ul style="list-style-type: none"> • Achievement/effort • Concern for others • Cooperation • Dependability • Initiative • Leadership orientation • Persistence • Stress tolerance

Table 1. (continued)

Category/ Domain	Subdomain	Definition	Representative Examples (Specific to Army)
<i>Worker-Oriented (continued)</i>			
Knowledges and Skills	Basic workplace knowledges and skills	Basic, developed capacities that facilitate the learning and acquisition of new knowledges and skills and that are required to at least some degree in virtually all jobs.	<ul style="list-style-type: none"> • Basic math facility • Reading skill or comprehension • Written communication
	Cross-functional knowledges and skills	Generic, developed capacities that facilitate the performance of the technical and non-technical requirements common to a wide range of jobs.	<ul style="list-style-type: none"> • Information gathering and management • Oral communication • Self-directed learning and development • Self-management • Teamwork
	Occupation or job-specific knowledges and skills	Specific, developed capacities that are needed to perform the technical and non-technical requirements specific to an occupation/job.	<ul style="list-style-type: none"> • Close combat • Basic electronic design and repair • Basic mechanical knowledge and repair
Aptitude and Abilities	General	Capacity to perform the general mental and physical requirements of the job; includes level of complexity needed (high, medium, low).	<ul style="list-style-type: none"> • General cognitive ability • Physical ability • Psychomotor ability
	Specific	Capacity to perform the specific mental and physical requirements of the job; includes level of complexity needed (high, medium, low).	<ul style="list-style-type: none"> • Arm-hand steadiness • Hand-eye coordination • Manual dexterity • Pattern recognition • Perceptual speed and accuracy
Experience and Education	Work/job-related experience and training	The types and amounts of job/work-related experience and training desirable or needed to perform the requirements of the job.	<ul style="list-style-type: none"> • Athletic • Driving and piloting • Electrical • Health services and medical • Mechanical • Protective service • Technical vocational
	Formal education and credentials	The types of degrees earned and formal credentials (e.g., licenses/certifications) desirable or needed to perform the requirements of the job.	<ul style="list-style-type: none"> • Post-secondary degree • Graduate degree • Credentialing examination • Union, guild, or professional association membership

Table 2. Purposes for Clustering MOS and Their Relevant Descriptor Domains

Purpose	Primary Clustering Descriptor(s)	Comment(s)
1. To create occupational clusters to facilitate the sampling of MOS and the conduct of criterion-related validation studies.	Higher-order and lower-order work activities; any or all occupation-specific knowledges, skills, and abilities (KSAs).	Could facilitate the conduct of criterion-related validation studies by grouping equivalent occupations. This would enable the Army to obtain a sufficiently representative sample of MOS that would permit generalization to other MOS, but minimize difficulties in obtaining the requisite data.
2. To explore and/or detect candidates for “mid-range” criterion measures.	Higher-order work activities.	For potential use in studying the feasibility of developing new performance criterion measures, or refining existing criterion measures, applicable across multiple MOS.
3. To research and/or explore the utility of non-performance descriptor-based MOS sub-clusters, either in and of themselves, or within broader performance descriptor-based clusters, for predicting non-performance criteria (i.e., attrition or retention-related). ^a	Any or all KSAs; also, potentially, organization/job context descriptors (for aspects of research related to person-organization fit issues).	Clustering descriptor(s) would be selected based on specific research question(s) of interest. Could address such questions as, “Are there clusters of MOS for which certain types or combinations of KSAs are predictive of attrition, non-technical performance (e.g., peer leadership), or person-organization fit?” ^b
4. To research and/or explore the utility of performance descriptor-based MOS sub-clusters within broader non-performance descriptor-based clusters.	Lower-order and/or higher-order work activities.	Could address such questions as, “What MOS within the existing Aptitude Areas (AA) share similar performance requirements (useful for supporting a validity or test transportability approach)?” ^c

^a For all purposes listed that involve “researching/exploring the utility of...” it should be understood the central question guiding all such research is the “utility for what?” (i.e., what is the criterion on which to evaluate this research?). In some cases, this criterion could be the actual criterion data collected from the validation studies (i.e., which clustering solution maximizes classification efficiency), provided there are criterion data for a sufficient number of MOS. Alternatively, the criterion could be more qualitative in nature, along the lines of, “Does the clustering solution answer – or shed more light on – the question asked?” These latter cases still require advance specification of the parameters for acceptable answers to such questions.

^b Should aggregate classification gains accrue from the use of alternative criteria (e.g., retention-related) but their maximization result in different MOS assignments than maximizing aggregate technical performance, then additional research would be needed to scale the relative value of gains on each criterion.

^c Such an approach would also be useful for identifying clustering solutions that maximize technical performance.

- How should theater or operation-specific requirements (e.g., Operation Iraqi Freedom) be handled? What implications, if any, do they have for the “shelf-life” of the proposed approach?
- How to incorporate information about the work or job context or conditions under which work must be performed (e.g., work activity by work activity, descriptor domain by descriptor domain, or as a separate, independent descriptor domain)?
- How can descriptors (or information on descriptors, from multiple, independent domains) be combined in new, innovative ways that both enhance the description of similarities and differences in Army jobs and minimize the costs of collecting job data?

Table 2. (continued)

Purpose	Primary Clustering Descriptor(s)	Comment(s)
5. To research various forms of a two-stage classification model: Similar to #1 (above), but sub-cluster within existing AA clusters. ^d	Interests, values, temperaments.	A two-stage procedure might assign Soldiers to broad clusters first and then make further differential assignments within clusters. Assignments to broad clusters (i.e., the first stage) could be on the basis of interests and/or fit with the peer leadership and team support performance requirements. Specific assignments (i.e., the second stage) within the broad clusters could be made on the basis of AFQT, AA, Army priorities, or openings. Alternatively, if the second stage were counseling/guidance-oriented, one could mitigate response bias problems with some of these measures. ^e
6. To research various forms of a “two-track” (as opposed to two-stage) selection/classification model.	It would depend on premises of the second “track,” but most likely applications would involve either cross-functional skills (e.g., oral communication, teamwork, critical thinking) or specialized/advanced skills or knowledge, as might be used for an alternative track for experienced applicants, or applicants with relevant certifications.	Could address such questions as, “Are there clusters of MOS for which certain specialized predictor types (e.g., cross-functional skills, or prior work experience) might be leveraged?”

^d The Army’s current classification process consists of a single stage. Specifically, new Army recruits are shown one or more possible MOS opportunities on a career counselor’s display screen, then make a choice. Which MOS opportunities are presented is based on a joint function of recruits’ AFQT and AA scores, Army priorities, and technical training seat availability.

^e Because of the way the Army’s basic and technical training are currently structured, it would be difficult to do multi-stage classification at different points in time (like the Air Force) by delaying the final job assignment until after basic training.

- What metrics, or scales, should be used to assess the targeted descriptors? How will these assessments be scored (e.g., in terms of importance, needed at entry, proficiency level required)?

Answers to all of these issues could not be fully specified up front or examined empirically during the course of this initial prototyping effort. On other issues, such as the first one, preliminary decisions were made by the project team, based on the ACRP's recommendations. Those decisions formed the basis for a set of design principles, which are summarized in Table 3. These principles guided and informed the development of the prototype job descriptors.

Table 3. Guiding Design Principles for Developing Army Job Descriptors

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1. The number of job descriptors constituting each targeted domain should be as comprehensive as possible (i.e., no important descriptors should be missing), but manageable. The “optimal” number of descriptors within a domain should be sufficient for describing important similarities and differences in Army jobs without compromising comprehensiveness and the approach's feasibility.
 2. Job descriptors must fit within, and reflect, the applicable domain definition; for example, a work activities descriptor should reflect a work activity, as operationalized by the project team.
 3. The formulation and selection of job descriptors should be grounded in, and informed by, relevant theory, existing taxonomies, and past research.
 4. Job descriptors, particularly work activities, should be specified at multiple levels of generality that can be organized hierarchically to support the Army's needs for job information at multiple levels of aggregation. The “optimal” number of levels should be sufficient to capture both the specificity needed for criterion measure development and the generality needed for transporting validity estimates, without being too cumbersome to develop or collect data on.
 5. Job descriptors within the same domain and at the same level of generality should be of similar breadth and/or scope.
 6. Cross-job descriptors – that is, descriptors that can be applied across Army jobs – should be defined so that a particular requirement can describe multiple jobs *if* the jobs do in fact share a similar requirement, at some level of generality.
 7. Where appropriate, explore job descriptors, or information on descriptors, from multiple, traditionally independent domains that could be combined in new and innovative ways that both enhance the description of similarities and differences in Army jobs and minimize the costs of collecting job information.
 8. Job descriptor statements should be written in a manner that reflects their meaning or application within the Army context; that is, descriptors should be customized to the Army context.
 9. Job descriptors within the same domain should be defined to be as conceptually independent as possible; that is, redundancies and overlap among descriptors representing the same domain should be minimized.
 10. Job descriptor labels and statements should be selected or developed in a manner that maximizes their definitional integrity and likely measurability; that is, they should lend themselves to the development of metrics (or scales) that permit the reliable and valid assessment of Army jobs against said descriptors.
 11. Job descriptor labels and definitions should be written in “user-friendly” language, without the use of jargon or complex terminology.
 12. Job descriptor labels and definitions should be written in a conceptually simple and clear manner.
 13. Job descriptor definitions should be descriptive, not prescriptive or evaluative.
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Note. Several of these guidelines are adapted from “Recommendations for an NSSB Common Language for Skill Standards” (NSSB, 1998).

Our overall approach in developing the descriptors was to build on existing job analysis systems, in particular the O*NET, and earlier job analysis efforts for the Army (e.g., Knapp &

Campbell, 2006; Knapp, Sager, & Tremble, 2005), where advisable. In the case of existing job analysis systems, this typically involved adapting the most promising descriptors from those systems by adding new ones or modifying existing descriptors to ensure their relevance and applicability to the Army. This approach was in keeping with the ACRP's recommendation that the prototype job analysis system need not be built from scratch, and that selected elements of existing job analysis systems, with the appropriate modifications, could prove useful in describing Army jobs. A further advantage to this approach is that incorporating elements of an existing system, such as the O*NET, into the Army prototype permits linkages to those systems and any relevant data collected on them (and vice versa). These linkages could be of value to the Army in the future for other kinds of applications (e.g., transitioning existing Soldiers to civilian jobs, identifying civilian career development opportunities for Reserve or National Guard Soldiers to enhance their skill sets).

Development of the Prototype Descriptors

Based on the guiding design principles, a descriptor development blueprint was created. Similar to a test blueprint or measurement plan, the descriptor blueprint defined each domain and specified how many levels and at what level of detail the descriptors within that domain were to be written and the steps to follow in developing them. See Appendix A for relevant portions of the blueprint.

Prototype descriptors and accompanying questionnaires were developed for a total of six out of the seven domains identified by the ACRP for development in this prototype. Only occupation-specific knowledges and skills did not have descriptors developed for it. A preliminary effort was made to develop descriptors in this domain, but the resulting descriptors tended to closely correspond to those being developed for the job-specific work activity domain (e.g., knowledge or skill to do X). Accordingly, the development of occupation-specific knowledge and skill descriptors were dropped from the development plan.³ Consistent with the ACRP's recommendations, work activity descriptors were developed at multiple levels of specificity. The highest level comprises a standardized set of cross-job descriptors that could be used to consistently rate all jobs in the Army, followed by two lower levels of descriptors that were more job-specific. Ratings data were not collected on these higher-order work descriptors during the field test. This was because practical constraints required us to prioritize the domains to be tested. The cross-job work activity descriptors were determined to be lower priority, relative to other descriptor domains, because (a) many of the descriptors on which these cross-job descriptors were based were first developed and examined in previous Army funded research whose goals and purpose were comparable to those of the current effort; and (b) the limited number and nature of the MOS sampled for the current field test were likely to limit the kinds of conclusions that could be drawn about the descriptors' usefulness. Although the higher-order work descriptors developed for the project were not field tested, they were piloted during the workshops conducted for the O*NET Evaluation study to confirm their relevance for describing MOS and their interpretability to Army supervisors or incumbents. Table 4 summarizes the targeted domains for which descriptors and questionnaires were developed and field tested in this project, organized by category and level of description (i.e., cross-job versus job-specific).

³ Consistent with one of the ACRP's recommendations, there could be considerable value in incorporating occupation-specific knowledges and skill-type descriptors into work activities, rather than treating them as two separate domains. Specifically, occupation-specific knowledges and skills could be used to describe work activities that are primarily knowledge-based or cognitive in nature (e.g., problem solving or decision-making).

Table 4. Descriptor Domains Developed for Prototype Questionnaires by Category and Level of Description

Level of Description	Category	
	Worker-Oriented	Work-Oriented
Cross-Job	<ul style="list-style-type: none"> • Work Abilities • Work Interests • Work Values • Work Styles 	<ul style="list-style-type: none"> • Work-Organizational Context • Work Activities (Higher-Order)
Job-Specific		<ul style="list-style-type: none"> • Work Activities (Lower-Order)

In general, developing the descriptors for each domain involved the following steps:

1. Collect source materials (e.g., Soldier Training Publications) or compile candidate descriptors for the targeted domain from relevant theory and existing taxonomies, such as those available in the O*NET system.
2. Draft a preliminary taxonomy of descriptors for the targeted domain using those source materials from the Army, and following the specifications outlined in the blueprint. Project staff modified existing taxonomies to make them relevant to the Army.
3. Review the preliminary taxonomy internally for consistency with the blueprint's specifications.
4. Conduct an external review of the descriptors for the targeted domain with military personnel researchers, military job analysts, or Army SMEs to ensure that the descriptors were relevant, sufficiently comprehensive, and understandable.

Table 5 summarizes the source(s) that served as the primary basis on which prototype descriptors for the targeted domains were developed.

Table 5. Primary Source(s) for the Descriptor Domains Developed for Prototype Questionnaires

Domain	Source(s)
<i>Work-Oriented</i>	
Work Activities	For the cross-job (or highest order) work activities, the Job Activities and Task Categories from the U.S. Army SYNVAL project (Peterson et al., 1990). The specifications for the job-specific (or lower-order) activities were modelled after the performance categories and requirements from the U.S. Army PerformM21 project (Knapp & Campbell, 2006) and the O*NET's Detailed Work Activities (DWAs) (Dietrich, Hendrickson-Larson, Hoppe, Paige, & Rosenow, 2002; National O*NET Center, 2003).
Work-Organizational Context	O*NET Work Context taxonomy (McPhail et al., 1995)
<i>Worker-Oriented</i>	
Work Abilities	O*NET Abilities taxonomy (Fleishman, Wetrogan, Uhlman, & Marshall-Mies, 1995)
Work Interests	O*NET Generalized Work Activities (GWA) taxonomy (Jeanneret & Borman, 1995), supplemented by Holland's (1997) RIASEC (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional) model, a typology for categorizing individuals and work environments
Work Values	Work Values taxonomy from the U.S. Army Select21 project (Knapp et al., 2005), which was partly based on Dawis and Lofquist's (1984) theory of work adjustment
Work Styles	Work Styles taxonomy from the U.S. Army Select21 project (Knapp et al., 2005), which represented a slightly modified version of the O*NET Work Styles taxonomy (Borman, McKee, & Schneider, 1995)

Selection of Rating Scales

To capture data on the various work- and worker-oriented domain descriptors, we selected among several rating scales used in previous research. For all domains except work context, we selected a 5-point absolute (as opposed to relative) importance scale, where 1 = *Not important* and 5 = *Extremely important*. Theoretically, a relative scale (e.g., *Less important than other activities/abilities/work styles*) might result in less negative skew – which is often a problem with job analysis ratings. However, relative ratings can limit comparability across jobs. Therefore, all the rating scales used in the field test questionnaires used absolute rating scales.

Work context descriptors were rated on a single 5-point scale ranging from 1 (*Not at all characteristic*) to 5 (*Very characteristic*). Because work context descriptors (e.g., exposure to danger) could be expected to vary in combat versus garrison settings, respondents were asked to rate the descriptors twice – once for combat and once for non-combat settings.

In addition to the importance rating scale, the work activities (and work activity categories) were rated on two additional scales. To obtain information relevant to training applications and for facilitating the selection or classification of Soldiers who will be successful

in Initial Entry Training, one scale rated the difficulty for first-term Soldiers in their MOS to learn to perform the activity through classroom training (1 = *Very easy to learn*, 5 = *Very difficult to learn*). The third and final scale assessed criticality, which is importance ratings but with the emphasis on the unit's mission. Specifically, the scale asked respondents to rate the seriousness of the negative consequences for a Soldier's unit or the unit's mission if a first-term Soldier in their MOS failed to successfully perform the activity (1 = *Not serious*, 5 = *Extremely serious*).

Finally, the worker-oriented questionnaires instructed respondents to rank order the descriptors within a targeted domain on their importance (e.g., from 1 = *Most Important* to 30 = *Least Important*). This exercise was included on the questionnaires for three purposes: (a) to provide additional data to examine participants' responses to the ratings scales (e.g., did participants' importance ratings match their rankings?); (b) to enhance the questionnaires' ability to capture cross-MOS differences; and (c) to open up relative-based options for scoring the questionnaires that were otherwise not available using absolute scales. A similar rank order exercise had been used in job-side measures developed to support the scoring of new predictor measures for the Select21 research program (Knapp et al., 2005).

Development and Pilot Testing of the Questionnaires

After the descriptor taxonomies were finalized, questionnaires were drafted to measure the targeted domains. Preliminary versions of the job-specific work activity questionnaires were administered to Army SMEs in several targeted MOS as part of a companion evaluation of the use of the O*NET system for describing Army jobs (Russell et al., 2008). All of the questionnaires were pilot tested with Army SMEs, both junior enlisted and NCOs, in August 2008 at Forts Bragg and Riley. Two significant changes were made to the questionnaires on the basis of this pilot. First, the work abilities taxonomy was condensed to make the questionnaire easier to complete without losing important information. Specifically, the initial abilities taxonomy, which was a slightly modified version of Fleishman's abilities taxonomy, was condensed from 54 abilities to 30. This was accomplished by merging two or more similar abilities into a single ability, based on pilot test results combined with rational judgment. Second, the ranking task was dropped because it proved too cumbersome.

Development of the Supporting Relational Database

At present, no single database exists for centrally storing job analysis data collected from current efforts to describe Army jobs. Accordingly, the second major deliverable in this prototype effort was a supporting relational database. As envisioned by the ACRP, the primary purpose of this relational database is to systematically capture and store job analysis data in an ongoing fashion. These job analysis data, either individually or in combination with other relevant data (e.g., criterion-related validity estimates, individual level Soldier predictor-criterion data), could then be used to generate and refine solutions to the Army's classification needs successively over time, as more data become available. Such an incremental approach balances demands on Army resources while providing the Army with reasonably sound and viable solutions to its enlisted classification objectives.

At present, the relational database contains tables and fields for capturing and storing information on (a) the MOS sampled, (b) the prototype job descriptors, (c) the scales used in the questionnaires, and (d) relevant summary statistics on the ratings collected on the prototype descriptors (e.g., means, standard deviations, median, inter-rater reliability estimates). A layout describing the contents of the final database can be found in Appendix B. In brief, developing the supporting relational database involved the following steps:

1. Design a relational database to encompass the elements comprising the prototype approach. After consultations with the Army, it was determined that a Microsoft Access database to be housed on an Army-owned server would sufficiently serve the Army's research needs at this early stage.
2. Program a working version of the relational database in Microsoft Access.
3. Test and validate the working database using data collected from the field test.
4. Finalize the database and upload it to an Army-owned server.

The final database was delivered to ARI at the completion of the project and uploaded to an Army-owned server. Included in the final database are the summary statistics on the ratings collected during the field test for the six MOS sampled.

IV. Field Test of the Prototype Army Job Analysis Approach

Method

Sample

Participants in the field test included junior enlisted Soldiers (E2-E4s) and NCOs (E5-E7s) in six targeted MOS: (a) Infantryman (11B), (b) Armor Crewman (19K), (c) Signal Support Specialist (25U), (d) Light-Wheel Vehicle Mechanic (63B)⁴, (e) Military Police (31B), and (f) Motor Transport Operator (88M). Participants for each MOS were randomly selected from rosters provided by the U.S. Army's Human Resource Command (HRC). Both incumbents and supervisors were sampled to examine if the two groups systematically perceive and, thereby rate, the same job differently.

The goal was to obtain complete data from at least 50 – 60 respondents per questionnaire for each MOS. We assumed no greater than a 10% response rate. When sampling respondents our target was a 60-40% split between junior enlisted Soldiers (incumbents) and NCOs (supervisors) within each MOS.⁵ A 60-40 split was chosen because NCOs tend to exhibit higher response rates, on average, to these kinds of questionnaires than more junior Soldiers. For most MOS, it was not possible to achieve our 60-40 targeted split for various reasons (e.g., the size of the MOS, the number of Soldiers currently deployed and thereby inaccessible to participate in the field test).

Description of Questionnaires

Work Activities. The Work Activities questionnaires asked incumbents and supervisors to rate various work activities and work activity categories specific to their MOS on three 5-point scales: (a) importance to the job of first-term Soldiers in their MOS, (b) difficulty for first-term Soldiers in their MOS to learn to perform the activity through classroom training, and (c) seriousness of the negative consequences for a Soldier's unit or the unit's mission if a first-term Soldier in their MOS failed to successfully perform the activity. Consistent with the ACRP recommendations to have multiple levels of specificity in task domain, respondents were asked to provide ratings for both discrete work activities (e.g., "Mount and dismount machine guns or other personal weapons on tripods") and categories of work activities (e.g., "Operate and maintain firearms and personal weapons [e.g., grenade launchers, grenades]"). The number of work activities and work activity categories varied by MOS. Copies of the Work Activities questionnaires for all six MOS are provided in Appendix C. Unlike work context, we did not collect two sets of ratings on work activities, one set targeting a combat environment and the second focused on a non-combat environment. A questionnaire measuring the cross-job (or highest-order) work activity descriptors was not developed and administered during the field test. As mentioned previously, the cross-job work activity descriptors were determined to be lower priority, relative to other descriptor domains, because (a) many of the descriptors on which these cross-job descriptors were based were first developed and examined in previous Army funded

⁴ The MOS designation for this MOS is changing from 63B to 91B. This report uses the 63B designation.

⁵ Throughout the remainder of the report, the term "incumbents" is used to refer to the junior enlisted Soldiers and "supervisors" when referring to NCOs.

research whose goals and purpose were comparable to those of the current effort; and (b) the limited number and nature of the MOS sampled for the current field test were likely to limit the kinds of conclusions that could be drawn about the descriptors' usefulness.

Work Context. The Work Context questionnaire (shown in Appendix D) asked respondents to rate the extent to which 46 work context descriptors are characteristic for first-term Soldiers in their MOS, using a 5-point scale. An example work context descriptor is, "Exposed, or potentially exposed, to manufactured (i.e., man-made) hazards or contaminants." Respondents rated each statement twice, once for non-combat zone field assignments and once for combat zone field assignments.

Work Abilities. The Work Abilities questionnaire asked respondents to rate the importance of 30 ability descriptors (e.g., "Exert maximum muscle force to lift, push, pull or carry objects") to the job of first-term Soldiers in their MOS on a 5-point scale. The Work Abilities questionnaire, along with the remaining worker-oriented questionnaires, is shown in Appendix E.

Work Styles. On the Work Styles questionnaire, respondents rated the importance of 20 work style descriptors to the job of first term Soldiers in their MOS. A sample work style descriptor is, "Showing a cooperative and friendly attitude towards others they dislike or disagree with."

Work Interests. The Work Interests questionnaire asked incumbents and supervisors to rate the importance of 30 interest descriptors (e.g., "Protecting others") to the job of first term Soldiers in their MOS.

Work Values. The Work Values questionnaire also requested a single importance rating for each of 30 work values descriptors (e.g., "Plan their work with little supervision").

Procedure for Administering the Questionnaires

The questionnaires were administered online using ARI's InterForm software application. Because our goal was to keep the administration time per participant to no more than 20-25 minutes, the questionnaires were administered using a matrix sampling approach (i.e., not all participants completed all questionnaires). Four blocks of questionnaires were administered to participants, as summarized in Table 6.

Table 6. Questionnaires Administered in Field Test by Block

Block	Questionnaires (in Order of Administration)
1	(a) Work Activities; (b) Work Interests; and (c) Work Values
2	(a) Work Activities; (b) Work Abilities; and (c) Work Styles
3	(a) Work Context; (b) Work Interests; and (c) Work Values
4	(a) Work Context; (b) Work Abilities; and (c) Work Styles

The blocks were constructed so that each questionnaire was administered in two of the four blocks. Each block consisted of three questionnaires, the first measuring one of the work-oriented domains (work activities or context) and the other two targeting the worker-oriented

domains (work abilities, styles, values, or interests). Participants within an MOS were randomly assigned to each block.

Invitations were e-mailed to selected participants' Army Knowledge Online (AKO) accounts. The invitation explained that ARI had been tasked to develop a new job analysis approach to support the Army's needs of ensuring that the right Soldier is classified to the right MOS and that they were being asked to complete a series of questionnaires to evaluate this new approach. The invitation also stated that all responses would be treated as confidential and used for research purposes only.

The e-mail included a signed memo from the ARI Unit Chief of the Personnel Assessment Research Unit (PARU), who endorsed the research project. The memo was intended to increase the response rate by signaling the importance of the research effort.

The invitations contained a web link to the questionnaires. All of the questionnaires were administered on a secure .mil server. When accessing the questionnaires, all participants were asked to create a user ID and password. The ID and password allowed participants to save their responses and exit the questionnaires, so that they could return to them where they had previously left off, as opposed to re-starting at the beginning.

Participants were given a suspense date of 2 weeks after receipt of the invitation. Reminder notices were sent to participants one week into the 2-week window.

Questionnaire Instructions

Consistent with the Army's personnel management objectives, participants were instructed to rate Skill Level 1 duty positions (i.e., entry-level jobs) within their MOS. Specifically, participants were asked to consider "*the typical first-term Soldier in their MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.*" Participants were then provided descriptions of the scale(s) on which they would make their ratings.

At the conclusion of each questionnaire, participants were asked to provide feedback on the questionnaire's (a) ease of use, (b) instructions, (c) clarity of the statements they were asked to rate, (d) relevance to their MOS, and (e) usefulness for describing the requirements of their MOS. For each of these five dimensions, participants provided ratings on a 1 (*Very bad*) to 5 (*Very good*) scale. Additionally, participants were asked to respond to three open-ended questions regarding their ratings and their reactions to the questionnaire.

Response Rates and Completion Times

Response rates for the field test blocks are reported in Tables 7 and 8. The response rates by MOS ranged from 4.5% to 20.2%, with many rates being less than 10%. Among the MOS, 25U evidenced the highest response rates across all four questionnaire blocks, perhaps owing to participants' greater accessibility to an Internet connection or more frequent usage of their AKO

accounts compared to Soldiers in the other MOS. The percentage of participants that completed the questionnaires relative to those accessing it was considerably higher at 50% or greater.

Table 7. Response Rates for Work Activity Questionnaire Blocks by MOS and Rater Type

MOS/Rater Type	N Solicited	Accessed Questionnaires		N	Completed Questionnaires	
		N	% Solicited		% Accessed	% Solicited
Block 1 – Work Activities, Abilities, and Work Styles Questionnaires						
11B	706	62	8.78%	32	51.6%	4.5%
Incumbents	335	7	2.09%	4	57.1%	1.2%
Supervisors	371	55	14.82%	28	50.9%	7.5%
19K	767	35	4.56%	34	97.1%	4.4%
Incumbents	367	8	2.18%	5	62.5%	1.4%
Supervisors	400	27	6.75%	19	70.4%	4.8%
25U	746	125	16.76%	78	62.4%	10.5%
Incumbents	373	32	8.58%	21	65.6%	5.6%
Supervisors	373	93	24.93%	57	61.3%	15.3%
31B	745	94	12.62%	62	66.0%	8.3%
Incumbents	372	19	5.11%	12	63.2%	3.2%
Supervisors	373	73	19.57%	49	67.1%	13.1%
63B	775	56	7.23%	36	64.3%	4.6%
Incumbents	396	12	3.03%	6	50.0%	1.5%
Supervisors	379	43	11.35%	30	69.8%	7.9%
88M	709	70	9.87%	49	70.0%	6.9%
Incumbents	358	14	3.91%	9	64.3%	2.5%
Supervisors	370	55	14.86%	39	70.9%	10.5%
Totals	4,448	442	9.94%	291	65.84%	6.54%
Incumbents	2,201	92	4.18%	57	61.96%	2.59%
Supervisors	2,266	346	15.27%	222	64.16%	9.80%
Block 2 – Work Activities, Work Interests, and Work Values Questionnaires						
11B	702	65	9.26%	35	53.8%	5.0%
Incumbents	336	11	3.27%	5	45.5%	1.5%
Supervisors	366	54	14.75%	30	55.6%	8.2%
19K	750	34	4.53%	25	73.5%	3.3%
Incumbents	350	11	3.14%	9	81.8%	2.6%
Supervisors	400	23	5.75%	16	69.6%	4.0%
25U	746	128	17.16%	85	66.4%	11.4%
Incumbents	373	35	9.38%	20	57.1%	5.4%
Supervisors	373	93	24.93%	65	69.9%	17.4%
31B	745	83	11.14%	48	57.8%	6.4%
Incumbents	372	9	2.42%	6	66.7%	1.6%
Supervisors	373	72	19.30%	42	58.3%	11.3%
63B	781	43	5.51%	29	67.4%	3.7%
Incumbents	396	13	3.28%	8	61.5%	2.0%
Supervisors	385	30	7.79%	21	70.0%	5.5%
88M	728	66	9.07%	48	72.7%	6.6%
Incumbents	345	13	3.77%	10	76.9%	2.9%
Supervisors	364	53	14.56%	38	71.7%	10.4%
Totals	4,452	419	9.41%	270	64.44%	6.06%
Incumbents	2,172	92	4.24%	58	63.04%	2.67%
Supervisors	2,261	325	14.37%	212	65.23%	9.38%

Table 8. Response Rates for Work Context Questionnaire Blocks by MOS and Rater Type

MOS/Rater Type	<i>N</i> Solicited	Accessed Questionnaires		Completed Questionnaires		
		<i>N</i>	% Solicited	<i>N</i>	% Accessed	% Solicited
Block 3 – Work Context, Abilities, and Work Styles Questionnaires						
11B	706	66	9.3%	47	71.2%	6.7%
Incumbents	339	17	5.0%	10	58.8%	2.9%
Supervisors	367	48	13.1%	36	77.1%	9.8%
19K	767	72	9.4%	50	69.4%	6.5%
Incumbents	367	6	1.6%	3	50.0%	0.8%
Supervisors	400	64	16.0%	46	71.9%	11.5%
25U	746	201	26.9%	129	64.2%	17.3%
Incumbents	373	52	13.9%	34	65.4%	9.1%
Supervisors	373	145	38.9%	93	64.1%	24.9%
31B	744	82	11.0%	54	65.9%	7.3%
Incumbents	372	12	3.2%	9	75.0%	2.4%
Supervisors	372	69	18.5%	45	65.2%	12.1%
63B	775	78	10.1%	50	64.1%	6.5%
Incumbents	396	11	2.8%	6	54.5%	1.5%
Supervisors	379	67	17.7%	44	65.7%	11.6%
88M	705	131	18.6%	80	61.1%	11.3%
Incumbents	339	38	11.2%	19	50.0%	5.6%
Supervisors	366	91	24.9%	61	67.0%	16.7%
<i>Totals</i>	4,443	630	14.18%	410	65.08%	9.23%
Incumbents	2,186	136	6.22%	81	59.56%	3.71%
Supervisors	2,257	484	21.44%	325	67.15%	14.40%
Block 4 – Work Context, Work Interests, and Work Values Questionnaires						
11B	707	54	7.6%	38	70.4%	5.4%
Incumbents	335	12	3.6%	5	41.7%	1.5%
Supervisors	372	42	11.3%	33	78.6%	8.9%
19K	750	59	7.9%	42	71.2%	5.6%
Incumbents	350	6	1.7%	5	83.3%	1.4%
Supervisors	400	53	13.3%	37	69.8%	9.3%
25U	746	223	29.9%	151	67.7%	20.2%
Incumbents	373	56	15.0%	37	66.1%	9.9%
Supervisors	373	167	44.8%	114	68.3%	30.6%
31B	745	88	11.8%	63	71.6%	8.5%
Incumbents	372	19	5.1%	12	63.2%	3.2%
Supervisors	373	67	18.0%	51	76.1%	13.7%
63B	781	61	7.8%	39	63.9%	5.0%
Incumbents	396	18	4.5%	9	50.0%	2.3%
Supervisors	385	43	11.2%	30	69.8%	7.8%
88M	706	143	20.2%	96	67.1%	13.6%
Incumbents	338	24	7.1%	11	45.8%	3.3%
Supervisors	368	119	32.3%	85	71.4%	23.1%
<i>Totals</i>	4,435	628	14.16%	429	68.31%	9.67%
Incumbents	2,164	135	6.24%	79	58.52%	3.65%
Supervisors	2,271	491	21.62%	350	71.28%	15.41%

Tables 9 and 10 reflect the completion rates by questionnaire, broken out by MOS and rater type. Both raw numbers and percentages are reported to determine whether there were large differences in the completion rates between MOS and within MOS by rater type. Because portions of the analyses are dependent on sample size (e.g., indices of reliability), it was important to determine the comparative sample sizes for each questionnaire included in the research. Completion rates reflected a less than ideal split between the incumbents and supervisors. Even though the solicited sample provided by HRC oversampled incumbents to the extent feasible (a 60-40% was desired), the splits in the obtained sample were generally around 20%-80% between incumbents and supervisors.

Table 9. Completed Work-Oriented Questionnaires (Work Activities and Work Context)

MOS/Rater Type	Work Activities		Work Context	
	N	%	N	%
11B	67		85	
Incumbents	9	13.4%	15	17.6%
Supervisors	58	86.6%	70	82.4%
19K	49		92	
Incumbents	14	28.6%	8	8.8%
Supervisors	35	71.4%	83	91.2%
25U	163		280	
Incumbents	41	25.2%	71	25.4%
Supervisors	122	74.8%	207	73.9%
31B	110		117	
Incumbents	18	16.4%	21	18.0%
Supervisors	91	82.7%	96	82.0%
63B	65		89	
Incumbents	14	21.5%	15	16.8%
Supervisors	51	78.5%	74	83.2%
88M	97		176	
Incumbents	19	19.6%	30	17.0%
Supervisors	77	79.4%	146	83.0%
Totals	551		839	
Incumbents	115	20.9%	160	19.1%
Supervisors	434	78.8%	676	80.6%

Table 10. Completed Worker-Oriented Questionnaires (Abilities, Work Styles, Work Interests, Work Values)

MOS/Rater Type	Work Abilities		Work Styles		Work Values		Work Interests	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
11B	79		79		73		73	
Incumbents	14	17.7%	14	17.7%	10	13.7%	10	13.7%
Supervisors	65	82.3%	65	82.3%	63	86.3%	63	86.3%
19K	74		74		67		67	
Incumbents	8	11.0%	8	11.0%	14	20.9%	14	20.9%
Supervisors	65	89.0%	65	89.0%	53	79.1%	53	79.1%
25U	207		207		236		236	
Incumbents	55	26.8%	55	26.8%	57	24.2%	57	24.2%
Supervisors	150	73.2%	150	73.2%	179	75.9%	179	75.9%
31B	116		116		111		111	
Incumbents	21	18.3%	21	18.3%	18	16.2%	18	16.2%
Supervisors	94	81.7%	94	81.7%	93	83.8%	93	83.8%
63B	86		86		68		68	
Incumbents	12	14.0%	12	14.0%	17	25.0%	17	25.0%
Supervisors	74	86.1%	74	86.1%	51	75.0%	51	75.0%
88M	129		129		144		144	
Incumbents	28	21.9%	28	21.9%	21	14.6%	21	14.6%
Supervisors	100	78.1%	100	78.1%	123	85.4%	123	85.4%
<i>Totals</i>	691		691		699		699	
Incumbents	138	20.0%	138	20.0%	137	19.6%	137	19.6%
Supervisors	548	79.3%	548	79.3%	562	80.4%	562	80.4%

Completion times by questionnaire block, MOS, and rater type are summarized in Table 11. Consistent with our target, the average time to complete each field test block was generally less than 20 minutes. Participants took the longest to complete Blocks 1 and 2, which included the Work Activities questionnaire, generally the longest measures of those administered. Each consisted of more than 30 items and required three ratings per item. Across all blocks, incumbents and supervisors within an MOS took similar amounts of time to complete the surveys. The largest MOS differences in completion times were for Blocks 1 and 2 (e.g., 11B took longer than all other MOS), which is likely attributable to different lengths in the Work Activities questionnaires.

Table 11. Completion Times by Questionnaire Block, MOS, and Rater Type

		Completion Time (in Minutes)			
MOS/Rater Type	<i>N</i> Completed	<i>M</i>	<i>Med</i>	<i>SD</i>	90 th <i>Percentile</i>
Block 1 – Work Activities, Abilities, and Work Styles Questionnaires					
11B	32	18.23	18.58	3.00	21.90
Incumbents	4	19.64	21.07	3.48	21.93
Supervisors	28	18.03	18.47	2.94	21.85
19K	24	11.09	11.06	2.07	13.63
Incumbents	5	10.99	10.85	2.14	12.97
Supervisors	19	11.11	11.18	2.10	14.30
25U	78	13.32	13.84	3.13	17.07
Incumbents	21	12.76	13.60	3.50	16.92
Supervisors	57	13.53	13.88	2.99	17.14
31B	62	14.86	15.03	2.90	18.05
Incumbents	12	15.14	14.96	3.52	21.35
Supervisors	49	14.78	14.95	2.80	18.00
63B	36	11.20	11.59	3.12	14.97
Incumbents	6	8.81	7.38	3.48	13.62
Supervisors	30	11.68	11.63	2.87	15.54
88M	49	11.67	12.15	2.85	15.35
Incumbents	9	12.89	13.37	2.58	16.60
Supervisors	39	11.47	11.80	2.86	15.08
Block 2 – Work Activities, Work Interests, and Work Values Questionnaires					
11B	35	17.95	18.73	3.64	22.33
Incumbents	5	16.44	15.77	3.07	21.23
Supervisors	30	18.21	19.30	3.71	22.72
19K	25	12.09	12.25	3.09	16.09
Incumbents	9	11.38	11.73	3.00	15.30
Supervisors	16	12.48	12.48	3.16	16.63
25U	85	14.49	14.98	3.35	19.10
Incumbents	20	14.52	14.58	3.56	19.77
Supervisors	65	14.48	15.05	3.31	18.40
31B	48	15.22	15.98	3.88	20.21
Incumbents	6	15.74	16.28	3.22	19.15
Supervisors	42	15.14	15.98	3.99	20.65
63B	29	15.22	15.98	3.88	20.21
Incumbents	8	10.66	12.57	3.85	14.38
Supervisors	21	11.09	11.67	3.13	15.72
88M	48	13.53	13.80	2.70	17.24
Incumbents	10	12.58	13.38	2.45	15.37
Supervisors	38	13.78	14.06	2.73	17.34

Table 11. (continued)

		Completion Time (in Minutes)			
	<i>N</i>				90 th
MOS/Rater Type	Completed	<i>M</i>	<i>Med</i>	<i>SD</i>	<i>Percentile</i>
Block 3 – Work Context, Abilities, and Work Styles Questionnaires					
11B	47	11.59	11.73	2.97	15.03
Incumbents	10	11.38	11.83	4.09	17.51
Supervisors	36	11.66	11.80	2.70	14.51
19K	50	11.11	11.90	2.73	14.55
Incumbents	3	9.22	9.92	3.37	12.18
Supervisors	46	11.19	11.90	2.70	14.63
25U	129	11.00	11.45	2.89	14.15
Incumbents	34	10.49	10.37	3.04	14.18
Supervisors	93	11.22	11.47	2.85	13.93
31B	54	11.76	11.74	2.28	15.03
Incumbents	9	11.79	11.55	2.07	15.82
Supervisors	45	11.76	11.77	2.34	15.00
63B	50	11.18	11.37	3.08	14.85
Incumbents	6	10.22	10.54	3.33	13.50
Supervisors	44	11.32	11.64	3.06	15.18
88M	80	11.52	11.98	2.56	14.65
Incumbents	19	11.84	12.30	2.02	14.65
Supervisors	61	11.42	11.83	2.71	14.83
Block 4 – Work Context, Work Interests, and Work Values Questionnaires					
11B	38	12.51	13.16	3.14	16.22
Incumbents	5	12.72	12.43	3.43	16.23
Supervisors	33	12.48	13.42	3.15	16.21
19K	42	11.77	12.25	2.85	15.16
Incumbents	5	10.15	8.87	3.60	15.65
Supervisors	37	11.99	12.62	2.72	15.00
25U	151	12.61	12.90	3.02	15.85
Incumbents	37	12.80	13.12	3.30	17.06
Supervisors	114	12.55	12.90	2.94	15.63
31B	63	12.09	12.52	2.78	15.63
Incumbents	12	10.49	10.58	2.59	14.29
Supervisors	51	12.46	12.65	2.71	15.82
63B	39	12.61	13.17	2.56	15.95
Incumbents	9	12.24	12.17	1.77	14.62
Supervisors	30	12.72	13.29	2.77	15.97
88M	96	12.43	12.93	2.56	15.17
Incumbents	11	13.67	13.87	0.97	14.67
Supervisors	85	12.27	12.83	2.66	15.22

Analysis Sample Demographics

The demographic characteristics of the field test sample are summarized in Table 12. As noted previously, most of the participants were supervisors ($N = 1,111$, compared to $N = 277$ for incumbents). Additionally, the highest percentage of participants was from 25U, a level much higher than their representation in the Army population as a whole. Because of these sample size differences, the analyses were conducted by rater type and MOS in addition to reporting the results for the sample as a whole.

Table 12. Demographic Characteristics of Field Test Sample

Demographic	Incumbents ($N = 277$)		Supervisors ($N = 1,111$)		Total ($N = 1,390$)	
	N	%	N	%	N	%
MOS						
11B	24	8.7%	128	11.5%	152	10.9%
19K	22	8.0%	118	10.6%	141	10.1%
25U	112	40.7%	329	29.6%	443	31.8%
63B	39	14.2%	187	16.8%	227	16.3%
31B	29	10.5%	125	11.6%	154	11.1%
88M	49	17.8%	223	20.1%	273	19.6%
Rank						
PV2	24	8.66%	N/A	N/A	24	1.7%
PFC	93	33.57%	N/A	N/A	93	6.7%
SPC/CPL	160	57.76%	N/A	N/A	160	11.5%
SGT	N/A	N/A	351	31.6%	351	25.2%
SSG	N/A	N/A	436	39.2%	436	31.3%
SFC	N/A	N/A	316	28.4%	316	22.7%
Missing	N/A	N/A	8	0.7%	14	1.0%
Months in Active Army						
Between 12 and 18 months	65	23.5%	4	.4%	69	5.0%
Between 18 and 24 months	71	25.6%	6	.5%	77	5.5%
Between 24 and 36 months	55	19.9%	19	1.7%	74	5.3%
Between 36 and 48 months	32	11.6%	52	4.7%	84	6.0%
More than 48 months	54	19.5%	1,026	92.4%	1,085	77.8%
Missing	0	0	4	.4%	5	.4%
Months Assigned to Duty Position						
6 months or less	119	42.9%	216	19.4%	277	19.9%
Between 6 and 12 months	99	35.7%	259	23.3%	334	24.0%
Between 12 and 18 months	40	14.3%	205	18.5%	269	19.3%
Between 18 and 24 months	19	7.1%	128	11.5%	167	12.0%
More than 24 months	0	0	302	27.2%	345	24.8%
Missing	0	0	1	.1%	2	.1%
Organizational Level						
Company/Troop/Battery	181	65.3%	563	50.7%	745	53.4%
Battalion/Squadron	52	18.8%	304	27.4%	357	25.6%
Regiment/Group	2	0.7%	13	1.2%	15	1.1%
Brigade	19	6.9%	94	8.5%	113	8.1%
Division	9	3.3%	27	2.4%	39	2.8%
Corps	1	.4%	5	.5%	6	.4%
Garrison	3	1.1%	21	1.9%	24	1.7%
Installation	2	.7%	15	1.4%	17	1.2%
HQ Army Command	2	.7%	9	.8%	11	.8%
HQ Army Service Component	0	0	2	.2%	2	.1%

Table 12. (continued)

Demographic	Incumbents (<i>N</i> = 277)		Supervisors (<i>N</i> = 1,111)		Total (<i>N</i> = 1,390)	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
HQ Direct Reporting Unit	2	.7%	0	0	2	.1%
HQ Department of the Army	0	0	5	.5%	5	.4%
None of the levels listed	4	1.4%	49	4.4%	54	3.8%
Missing	0	0	1	.1%	1	.1%
Months Deployed						
None	113	40.8%	72	6.5%	186	13.3%
6 months or less	19	6.9%	26	2.3%	45	3.2%
Between 6 and 15 months	98	35.4%	213	19.2%	311	22.3%
Between 15 and 24 months	30	10.8%	268	24.1%	301	21.6%
Between 24 and 36 months	17	6.1%	381	34.3%	399	28.6%
More than 36 months	0	0	151	13.6%	152	10.9%
Missing	0	0	0	0	0	0

Results

Basic Descriptive Statistics

Two statistics describing incumbent and supervisor ratings of the survey items are reported in Tables 13 through 17: (a) the mean of the item means, and, (b) the median of the item standard deviations (*SDs*). The mean of the item means (mean of *Ms*) reflects the average value of the responses to items comprising each of the respective questionnaire domains. It is calculated by taking the average of each item response, segmented by rater type and MOS, and weighting the responses by the number of respondents who completed each item. The median of the item *SDs* represents the 50th percentile. It is computed by taking the median (midpoint) of the range of *SDs* across items. It reflects the variation in responses to each of the domain items, both between MOS and within MOS by rater type. The median was selected because the *SDs* within MOS and rater type could be easily influenced by small sample sizes; reporting the mean *SD* would overweight *SDs* that were aberrantly large and reflect an inflated degree of variation in responses. In addition to reporting the results by MOS and rater type, we also report the total sample-weighted means for the entire sample and by rater type. We elected to report the mean of the median *SDs* for the entire sample, as the median *SDs* contributing to the mean value already accounted for any aberrant responses or small sample sizes.

Work-Oriented Descriptor Ratings

The results of the analysis of the work-oriented descriptors (e.g., work activities, work context) can be found in Tables 13, 14, and 15. Work activity descriptors were rated on three scales: (a) importance, (b) training difficulty, and (c) criticality. Participants completed work activity items specific to their MOS. The means for importance ratings ranged from 3.86 to 4.50, with the sample-weighted mean rating of 4.09 (*SD* = 1.09). The means for training difficulty ratings ranged from 2.27 to 3.08, while the sample-weighted mean was 2.71 (*SD* = 1.17). Finally, the means of criticality ratings ranged from 3.76 to 4.42, while the sample-weighted mean was 4.01 (*SD* = 1.14).

Table 13. Descriptive Statistics for Ratings of Work Activities by MOS and Rater Type

MOS/Rater Type	<i>N</i>	Number of Statements	Importance (1-5)		<i>N</i>	Trainability (1-5)		<i>N</i>	Criticality (1-5)	
			Mean of <i>Ms</i>	Mdn of <i>SDs</i>		Mean of <i>Ms</i>	Mdn of <i>SDs</i>		Mean of <i>Ms</i>	Mdn of <i>SDs</i>
11B	64-66	64	4.44	.79	64-66	2.72	1.14	64-66	4.37	.88
Incumbents	9	64	4.47	.73	9	2.41	1.01	8-9	4.42	1.00
Supervisors	55-57	64	4.44	.81	55-57	2.76	1.14	55-57	4.36	.91
19K	45-48	31	4.17	.99	46-48	2.74	1.12	45-48	4.08	1.08
Incumbents	13-14	31	4.50	.77	13-14	2.55	1.27	13-14	4.32	1.02
Supervisors	31-34	31	4.03	1.00	32-34	2.79	1.06	31-34	3.97	1.12
25U	159-161	31	3.96	1.16	159-161	2.80	1.13	159-161	3.91	1.23
Incumbents	39-40	31	3.84	1.28	40	2.72	1.14	40	3.76	1.36
Supervisors	119-121	31	4.00	1.13	119-121	2.83	1.13	119-121	3.96	1.18
31B	104-108	43	3.90	1.16	104-108	2.81	1.12	104-108	3.81	1.19
Incumbents	17-18	43	4.11	1.24	18	2.62	1.18	17-18	3.98	1.32
Supervisors	85-89	43	3.86	1.14	85-89	2.84	1.10	85-89	3.78	1.19
63B	62-63	18	4.11	1.16	62-63	2.41	1.27	61-63	4.08	1.11
Incumbents	14	18	4.33	.91	14	2.35	1.23	14	4.13	.92
Supervisors	48-49	18	4.05	1.25	48-49	2.43	1.29	47-49	4.06	1.17
88M	91-95	25	4.26	1.13	91-95	2.91	1.27	91-95	4.09	1.19
Incumbents	19	25	4.11	1.22	19	2.29	1.23	19	3.86	1.39
Supervisors	71-75	25	4.31	1.09	71-75	3.08	1.23	71-75	4.16	1.13
Total <i>M</i>			4.09	1.09		2.71	1.17		4.01	1.14
Incumbent <i>M</i>			4.08	1.10		2.54	1.18		3.97	1.24
Supervisor <i>M</i>			4.09	1.09		2.82	1.16		4.02	1.14

Note. *Ns* are reported as ranges because *Mean* and *SD* information is derived from individual items. Total *M*, Incumbent *M*, and Supervisor *M* are sample-weighted means.

Table 14. Descriptive Statistics for Work Activities Category Ratings by MOS and Rater Type

MOS/Rater Type	<i>N</i>	Number of Statements	Importance (1-5)		<i>N</i>	Trainability (1-5)		<i>N</i>	Criticality (1-5)	
			Mean of <i>Ms</i>	Mdn of <i>SDs</i>		Mean of <i>Ms</i>	Mdn of <i>SDs</i>		Mean of <i>Ms</i>	Mdn of <i>SDs</i>
11B	64-66	13	4.46	.68	64-66	2.84	1.17	63-66	4.42	.75
Incumbents	8-9	13	4.48	.73	8-9	2.34	1.00	8-9	4.48	.73
Supervisors	55-57	13	4.46	.68	55-57	2.92	1.17	54-57	4.41	.76
19K	47-48	10	4.28	.94	47-48	2.72	1.06	47-48	4.24	.96
Incumbents	13-14	10	4.50	1.02	14	2.36	1.21	14	4.41	1.06
Supervisors	34	10	4.19	.98	33-34	2.87	.97	33-34	4.17	.90
25U	154-161	7	4.04	1.05	155-161	2.91	1.09	155-161	4.09	1.06
Incumbents	38-40	7	3.92	1.22	39-40	2.94	1.22	39-40	3.98	1.25
Supervisors	116-121	7	4.07	.97	116-121	2.91	1.08	116-121	4.13	.97
31B	105-108	8	4.00	1.10	105-108	2.96	1.06	105-108	4.01	1.12
Incumbents	18	8	4.26	1.10	18	2.97	1.28	17-18	4.19	1.16
Supervisors	86-89	8	3.95	1.09	86-89	2.95	1.04	86-89	3.97	1.11
63B	62-63	6	4.21	1.03	62-63	2.53	1.35	62-63	4.23	1.06
Incumbents	14	6	4.45	.80	14	2.28	1.34	13-14	4.40	1.04
Supervisors	48-49	6	4.14	1.11	48-49	2.60	1.32	48-49	4.18	1.07
88M	91-95	6	4.29	1.10	91-95	2.88	1.25	91-95	4.23	1.11
Incumbents	17-19	6	4.16	1.28	17-19	2.04	1.11	17-19	3.92	1.41
Supervisors	73-75	6	4.33	1.07	73-75	3.09	1.21	73-75	4.32	1.04
Total <i>M</i>			4.17	1.01		2.84	1.15		4.17	1.03
Incumbent <i>M</i>			4.20	1.09		2.60	1.21		4.15	1.17
Supervisor <i>M</i>			4.16	.99		2.91	1.12		4.18	.99

Note. *Ns* are reported as ranges because *Mean* and *SD* information is derived from individual items. Total *M*, Incumbent *M*, and Supervisor *M* are sample-weighted means.

As with the individual work activity descriptors, the work activity categories were also MOS-specific and rated on the same three scales. As shown in Table 14, the means of importance ratings ranged from 3.92 to 4.50, with the sample-weighted mean being 4.17 ($SD = 1.01$). The means of training difficulty ratings ranged from 2.28 to 3.09, while the sample-weighted mean was 2.84 ($SD = 1.15$). Finally, the means of the criticality ratings ranged from 3.92 to 4.48, while the sample-weighted mean was 4.17 ($SD = 1.03$).

We would not expect the training and either the importance or criticality ratings to be systematically correlated and they were not. The lowest correlation among ratings of the individual (as opposed to category) work activities was between incumbent criticality and training ($r = -.03$) and the highest correlation was between supervisor criticality and training ratings ($r = .20$). We did expect that the importance and criticality ratings would be highly correlated and indeed they were ($r = .92$ for incumbents and $r = .97$ for supervisors).

Table 15. Descriptive Statistics for Work Context Ratings

MOS/Rater Type	N	Number of WCs	Non-Combat Ratings (1-5)		N	Combat Ratings (1-5)	
			Mean of Ms	Mdn of SDs		Mean of Ms	Mdn of SDs
11B	74-76	46	2.63	1.35	74-76	3.64	1.19
Incumbents	13	46	2.93	1.54	12-13	3.88	1.08
Supervisors	61-63	46	2.57	1.31	60-62	3.59	1.19
19K	85-87	46	2.68	1.23	86-87	3.62	1.18
Incumbents	7	46	3.06	1.70	6-7	3.29	1.73
Supervisors	77-79	46	2.64	1.17	78-79	3.64	1.14
25U	254-257	46	2.51	1.29	254-257	3.39	1.27
Incumbents	56	46	2.52	1.39	54-56	3.25	1.33
Supervisors	196-199	46	2.52	1.24	196-199	3.43	1.25
31B	106-107	46	2.89	1.28	106-107	3.52	1.25
Incumbents	18-19	46	2.67	1.35	18-19	2.93	1.51
Supervisors	87-88	46	2.94	1.24	87-88	3.64	1.15
63B	73-74	46	2.57	1.32	73-74	3.30	1.28
Incumbents	9-10	46	2.49	1.45	9-10	3.24	1.38
Supervisors	64	46	2.58	1.27	64	3.31	1.27
88M	148-150	46	2.37	1.29	147-150	3.47	1.29
Incumbents	19-20	46	2.62	1.55	18-20	3.54	1.44
Supervisors	128-130	46	2.33	1.23	128-130	3.45	1.25
Total M			2.57	1.30		3.47	1.28
Incumbent M			2.63	1.44		3.32	1.42
Supervisor M			2.57	1.27		3.50	1.29

Note. Ns are reported as ranges because *Mean* and *SD* information is derived from individual items. Total *M*, Incumbent *M*, and Supervisor *M* are sample-weighted means.

Work context descriptors were rated on the same scale in two settings: (a) non-combat and (b) combat. The means of the non-combat importance ratings ranged from 2.33 to 3.06, with the sample-weighted mean being 2.57 ($SD = 1.30$). The means of the combat ratings ranged from 2.93 to 3.88, with the sample weighted mean being 3.47 ($SD = 1.28$). The large difference in item ratings between combat and non-combat contexts is notable and consistent with previous

research. Results of the Army O*NET report (Russell et al., 2008) demonstrated that when SMEs rated O*NET work context descriptors, the ratings needed to be made separately for deployment and in-garrison activities. These results support the notion that both incumbents and supervisors view the work context within their MOS differently based on whether the job duties are conducted in combat or non-combat environments.

Worker-Oriented Descriptor Ratings

The results of the analysis of the worker-oriented descriptors (e.g., work abilities, styles, values, and interests) can be found in Tables 16 and 17. The means for work abilities ratings ranged from 3.25 to 4.17, with the sample-weighted mean being 3.68 ($SD = 1.14$). The means for the work styles ratings ranged from 3.23 to 4.61, while the sample-weighted mean was 3.90 ($SD = 1.04$). The means for the work values ratings ranged from 2.75 to 3.78, while the sample-weighted mean was 3.54 ($SD = 1.23$). The means for the work interests ratings ranged from 3.22 to 3.74, while the sample-weighted mean was 3.46 ($SD = 1.31$).

Table 16. Descriptive Statistics for Work Ability and Work Style Importance Ratings

MOS/Rater Type	Work Abilities (1-5)			Work Styles (1-5)		
	<i>N</i>	Mean of <i>Ms</i>	Mdn of <i>SDs</i>	<i>N</i>	Mean of <i>Ms</i>	Mdn of <i>SDs</i>
11B	62-63	3.83	1.19	55	4.07	1.03
Incumbents	10	4.17	1.35	8	4.61	.74
Supervisors	52-53	3.94	1.08	47	3.93	1.03
19K	56	3.70	.99	48-49	3.90	.95
Incumbents	6	4.03	1.20	4	4.34	.58
Supervisors	49	3.69	.98	43-44	3.87	.95
25U	161-163	3.61	1.15	136	3.90	.99
Incumbents	40	3.25	1.26	37	3.63	1.16
Supervisors	121-123	3.47	1.14	99	4.00	.90
31B	101-103	3.83	1.02	93	3.95	.97
Incumbents	20	3.96	1.17	16	4.18	.89
Supervisors	80-82	3.78	1.04	76	3.90	.95
63B	76	3.66	1.20	66-67	3.73	1.22
Incumbents	9	3.31	1.64	8	3.23	1.73
Supervisors	67	3.66	1.12	58-59	3.80	1.11
88M	96-98	3.57	1.16	83-85	3.88	1.04
Incumbents	19-20	3.70	1.21	17	3.94	1.06
Supervisors	75-77	3.54	1.16	65-67	3.89	1.01
Total <i>M</i>		3.68	1.14		3.90	1.04
Incumbent <i>M</i>		3.69	1.27		3.87	1.18
Supervisor <i>M</i>		3.68	1.11		3.99	1.00

Note. *Ns* are reported as ranges because *Mean* and *SD* information is derived from individual items. Total *M*, Incumbent *M*, and Supervisor *M* are sample-weighted means.

Table 17. Descriptive Statistics for Work Values and Work Interests Importance Ratings

MOS/Rater Type	Work Values (1-5)			Work Interests (1-5)		
	<i>N</i>	Mean of <i>Ms</i>	Mdn of <i>SDs</i>	<i>N</i>	Mean of <i>Ms</i>	Mdn of <i>SDs</i>
11B	49-50	3.61	1.22	56-57	3.37	1.38
Incumbents	7	3.05	1.50	8	3.22	1.53
Supervisors	42-43	3.70	1.18	48-49	3.39	1.38
19K	47	3.66	1.13	52-53	3.44	1.36
Incumbents	7	3.78	1.38	10	3.74	1.41
Supervisors	40	3.64	1.09	42-43	3.37	1.33
25U	168-170	3.52	1.20	183-185	3.52	1.22
Incumbents	42	3.45	1.27	44-45	3.58	1.25
Supervisors	126-128	3.54	1.17	138-140	3.50	1.24
31B	74-75	3.54	1.20	93-94	3.60	1.24
Incumbents	8	2.75	1.59	13	3.49	1.52
Supervisors	66-67	3.63	1.12	80-81	3.62	1.17
63B	43-44	3.52	1.25	52-53	3.30	1.29
Incumbents	10-11	3.63	1.13	14	3.38	1.24
Supervisors	32-33	3.48	1.28	38-39	3.27	1.33
88M	102-104	3.50	1.32	117-119	3.39	1.43
Incumbents	17-18	3.44	1.49	18	3.51	1.45
Supervisors	84-86	3.51	1.29	99-101	3.36	1.43
Total <i>M</i>		3.54	1.23		3.46	1.31
Incumbent <i>M</i>		3.40	1.36		3.52	1.34
Supervisor <i>M</i>		3.57	1.20		3.45	1.30

Note. *Ns* are reported as ranges because *Mean* and *SD* information is derived from individual items. Total *M*, Incumbent *M*, and Supervisor *M* are sample-weighted means.

Were the Jobs Rated Reliably Using the Field Test Questionnaires?

Two metrics are reported in Tables 18 through 22: (a) the single rater reliability [ICC (C,1)], and, (b) the multi-rater reliability [ICC (C,k)]. The single rater reliability index is a measure of reliability based on the ANOVA framework; it is computed by assessing the amount of variance in ratings within group (e.g., within MOS) in comparison to the amount of variance in ratings between groups (e.g., between MOS). The multi-rater reliability index, ICC (C,k) is comparable to coefficient alpha and is a measure of consistency of ratings across multiple raters. We report the results for ICC (C,1) and ICC (C,k) by MOS and rater type.

Generally speaking, the single rater reliability provides an estimate of how consistent any single rater was with the other raters in the group, on average. Because the single-rater reliability is sample-size invariant, it is generally used to make cross-instrument or cross-sample comparisons. In contrast, the multi-rater reliability estimate speaks to how reliable or consistent the mean rating supplied by that group of raters was (i.e., what is the likelihood that a similar but different group of raters from the same population would produce the same mean rating). For most applications, including those for which the Army would be using these data (e.g., clustering MOS), the most relevant of the two is the multi-rater ICC, because operational decisions are generally based on the aggregate judgment of a group (or sample) of raters on which the data were collected.

Work-Oriented Descriptor Reliability Estimates

The reliability estimates for the work-oriented descriptors are presented in Tables 18 to 20. For work activities ratings, we estimated single and multi-rater reliability estimates for all three types of ratings: (a) importance, (b) training difficulty, and, (c) criticality. For work context, we estimated multi-rater reliability estimates for both categories of ratings: (a) non-combat, and (b) combat. In evaluating the multi-rater reliability estimates, we generally focused on comparing the estimates in this research to the O*NET target level – a median ICC (C,k) of .80 or greater (McCloy, Waugh, & Medsker, 1998).

Reliability estimates for the work activities categories are presented in Table 18. Across all multi-rater reliability estimates, the O*NET rule of thumb of .80 was exceeded (values ranged from .85 to .99). In general, there were no systematic differences in reliability estimates between MOS across all activities ratings (values ranged from .93 to .98). Additionally, there were no systematic differences in multi-rater reliability estimates between rater types across activities ratings. While estimates ranged from .85 (19K incumbent importance ratings) to .99 (11B incumbent trainability ratings), the majority of values were .95 and above. Compared to the results found in the Army O*NET report, we generally found a higher supervisor ICC (C,k) for the importance ratings for all four MOS included in both projects (i.e., 19K, 25U, 31B, and 88M). This is most likely due to the larger number of raters included in the present research compared to the Army O*NET study, which included only eight raters for each domain.

Table 18. ICCs of Work Activities Ratings by MOS and Rater Type

MOS/Rater Type	N	Number of Statements	Importance		Army O*NET		Trainability		Criticality	
			ICC (C,1)	ICC (C,k)	ICC (C,1)	ICC (C,k)	ICC (C,1)	ICC (C,k)	ICC (C,1)	ICC (C,k)
11B	57-60	64	.32	.97			.45	.98	.37	.97
Incumbents	8-9	64	.27	.96			.55	.99	.35	.97
Supervisors	49-51	64	.34	.97			.43	.98	.38	.97
19K	38-49	31	.38	.95			.43	.96	.48	.97
Incumbents	13	31	.16	.85			.41	.96	.42	.96
Supervisors	25-27	31	.42	.96	.58	.89	.46	.96	.50	.97
25U	152-154	31	.36	.95			.47	.96	.39	.95
Incumbents	39-40	31	.42	.96			.51	.97	.50	.97
Supervisors	112-114	31	.33	.94	.41	.86	.45	.96	.34	.94
31B	98-102	43	.39	.97			.36	.96	.39	.97
Incumbents	16-18	43	.37	.96			.38	.96	.34	.96
Supervisors	81-83	43	.40	.97	.57	.92	.35	.96	.41	.97
63B	58-62	18	.50	.95			.53	.95	.42	.93
Incumbents	14	18	.39	.92			.55	.96	.35	.91
Supervisors	44-48	18	.51	.95			.53	.95	.44	.93
88M	86-87	25	.42	.95			.56	.97	.53	.97
Incumbents	19	25	.32	.92			.58	.97	.45	.95
Supervisors	66-67	25	.45	.95	.42	.87	.55	.97	.56	.97

Note. *Ns* are reported as ranges because *Mean* and *SD* information is reported as average of individual items. MOS analyzed in the Army O*NET study were 19K, 25U, 31B, and 88M.

Whereas the multi-rater estimates were higher in the present research, the single-rater work activities reliability estimates were generally higher in the Army O*NET study (Russell et al., 2008). This is likely attributable to the more intense training the supervisors received. Whereas raters in this research were untrained and unproctored, the Army O*NET study used proctored rating sessions. The presence of a proctor may have increased rater motivation to complete the ratings in a more consistent manner.

The work activities categories reliability estimates are presented in Table 19. All multi-rater reliability estimates were above the O*NET rule of thumb with one exception (see 88M incumbent ratings of importance). Multi-rater reliability estimates ranged from .71 to .91. In general, there were no systematic differences in the reliability estimates by MOS across all activities category ratings; these estimates ranged from .84 to .91. For the most part, there were no systematic differences in multi-rater reliability estimates between rater types across all category ratings (values ranged from .71 to .92). However, supervisors generally rated the importance, trainability, and criticality items somewhat more reliably than did incumbents. Although not directly comparable to the importance ratings found in the Army O*NET report, we found almost identical supervisor multi-rater reliability estimates for the work activity category importance ratings for the four MOS examined in both pieces of research.

Table 19. ICCs of Work Activities Category Ratings by MOS and Rater Type

MOS/Rater Type	N	Number of Statements	Importance		Army O*NET		Trainability		Criticality	
			ICC (C,1)	ICC (C,k)	ICC (C,1)	ICC (C,k)	ICC (C,1)	ICC (C,k)	ICC (C,1)	ICC (C,k)
11B	61-63	13	.41	.90			.67	.96	.44	.91
Incumbents	8	13	.31	.85			.70	.97	.35	.88
Supervisors	53-55	13	.43	.91			.66	.96	.46	.92
19K	47	10	.42	.88			.47	.90	.42	.88
Incumbents	13-14	10	.31	.82			.42	.88	.38	.86
Supervisors	33-34	10	.45	.89	.58	.89	.47	.90	.46	.89
25U	152-154	7	.48	.87			.55	.90	.44	.84
Incumbents	38-39	7	.51	.88			.53	.89	.50	.88
Supervisors	114-115	7	.46	.86	.41	.86	.57	.90	.41	.83
31B	101-103	8	.57	.91			.58	.92	.55	.91
Incumbents	17-18	8	.48	.88			.63	.93	.40	.84
Supervisors	84-85	8	.59	.92	.57	.92	.57	.92	.59	.92
63B	59-62	6	.57	.89			.62	.91	.46	.84
Incumbents	13-14	6	.59	.90			.55	.88	.49	.85
Supervisors	46-48	6	.57	.89			.64	.91	.46	.84
88M	87-90	6	.51	.86			.67	.92	.64	.91
Incumbents	16	6	.29	.71			.82	.97	.50	.86
Supervisors	70-73	6	.55	.88	.42	.87	.60	.90	.67	.93

Note. *Ns* are reported as ranges because *Mean* and *SD* information is reported as average of individual items. MOS analyzed in the Army O*NET study were 19K, 25U, 31B, and 88M.

In comparison to the ratings of the work activities, the work activities categories had lower multi-rater reliability estimates, but higher single-rater reliability estimates. This is likely due to the greater number of items rated in the complete work activities questionnaires—item

totals were reduced by as much as 80% in creating the work activities categories. Reductions in the number of elements included in the analysis influences the multi-rater reliability estimates, but does not influence the single-rater reliability estimates.

The work context reliability estimates are presented in Table 20. All multi-rater reliability estimates were above the minimum target of .80. Multi-rater reliability estimates ranged from .88 to .98. In general, there were no systematic differences in the reliability estimates across MOS for both types of context ratings; these estimates ranged from .91 to .96. For the most part, there were also no systematic differences in multi-rater reliability estimates between rater types across all category ratings. However, incumbents typically rated the items in both combat and non-combat environments somewhat more reliably than did supervisors.

Table 20. ICCs of Work Context Ratings by MOS and Rater Type

MOS/Rater Type	N	Number of Statements	Non-Combat Ratings		Army O*NET		Combat Ratings	
			ICC (C,1)	ICC (C,k)	ICC (C,1)	ICC (C,k)	ICC (C,1)	ICC (C,k)
11B	69-71	46	.30	.95			.18	.91
Incumbents	12-13	46	.48	.98			.21	.93
Supervisors	57-58	46	.24	.93			.17	.90
19K	80-84	46	.17	.91			.19	.92
Incumbents	6-7	46	.34	.96			.45	.97
Supervisors	73-76	46	.14	.88	.64	.91	.14	.88
25U	244-247	46	.25	.94			.30	.95
Incumbents	54-56	46	.32	.96			.38	.97
Supervisors	188-189	46	.22	.93	.46	.88	.28	.95
31B	98-100	46	.27	.94			.33	.96
Incumbents	17-18	46	.24	.94			.50	.98
Supervisors	81-82	46	.27	.95	.50	.90	.24	.94
63B	72-73	46	.23	.93			.28	.95
Incumbents	8-9	46	.20	.92			.26	.94
Supervisors	64	46	.23	.93			.29	.95
88M	137-144	46	.26	.94			.23	.93
Incumbents	17-19	46	.55	.98			.43	.97
Supervisors	120-125	46	.18	.91	.36	.84	.19	.92

Note. *Ns* are reported as ranges because *Mean* and *SD* information is reported as average of individual items.

Although not directly comparable to the context ratings found in the Army O*NET report, we found higher supervisor multi-rater ICCs for work context ratings (both non-combat and combat) for three of the MOS; 25U, 31B, and 88M. The ICC (C,k) value for 19K was higher than the ICC (C,k) value in the Army O*NET study for both combat and non-combat ratings of work context. In contrast to the multi-rater reliability comparison, the ICC (C,1) values were higher for both non-combat and combat context ratings in each of the respective MOS in the Army O*NET study. The generally higher values for ICC (C,k) in the present research may be due to the larger number of raters and descriptors; the Army O*NET project had eight raters per MOS, whereas the supervisor sample size for each MOS in this research ranged from 33-115. In sum, the separation of work content ratings into combat and non-combat ratings appears to have resulted in more reliable ratings in this study in comparison to the Army O*NET study.

Worker-Oriented Descriptor Reliability Estimates

The reliability estimates for the worker-oriented descriptors are presented in Tables 21 and 22. For all worker-oriented descriptor reliabilities, we computed single and multi-rater reliability estimates for each domain: work abilities, styles, values, and interests. Again, in examining the multi-rater reliability estimates, we focus on comparing the estimates to the O*NET minimum target level of .80 (McCloy et al., 1998). It was not possible to make comparisons between the work styles, values, interests descriptors and those examined in the Army O*NET project because ratings on those domains were not collected in that evaluation.

The work abilities reliability estimates are presented in Table 21. Multi-rater reliability estimates ranged from .93 to .98, well above the O*NET standard. In general, there were no systematic differences in reliability estimates between MOS across activities categories ratings; these estimates ranged from .93 to .97. There were also no systematic differences in multi-rater reliability estimates between rater types across abilities ratings. In fact, two MOS (11B and 25U) had identical reliability estimates for both incumbent and supervisor ratings.

Table 21. ICCs of Work Abilities and Styles Ratings by MOS and Rater Type

MOS/Rater Type	N	Number of Abilities	Work Abilities		Army O*NET		N	Number of Styles	Work Styles	
			ICC (C,1)	ICC (C,k)	ICC (C,k)	ICC (C,k)			ICC (C,1)	ICC (C,k)
11B	62	30	.32	.93			55	20	.36	.92
Incumbents	10	30	.31	.93			8	20	.26	.87
Supervisors	52	30	.32	.93			47	20	.34	.91
19K	56	30	.35	.94			47	20	.36	.92
Incumbents	6	30	.43	.96			4	20	.15	.78
Supervisors	49	30	.34	.94	.26	.67	42	20	.38	.92
25U	157	30	.38	.95			136	20	.43	.94
Incumbents	40	30	.41	.95			37	20	.49	.95
Supervisors	117	30	.37	.95	.20	.69	99	20	.37	.92
31B	100	30	.41	.95			93	20	.52	.96
Incumbents	20	30	.44	.96			16	20	.58	.96
Supervisors	79	30	.40	.95	.43	.87	76	20	.51	.95
63B	76	30	.50	.97			65	20	.61	.97
Incumbents	9	30	.63	.98			8	20	.72	.98
Supervisors	67	30	.47	.96			57	20	.57	.96
88M	89	30	.48	.97			82	20	.43	.94
Incumbents	19	30	.62	.98			17	20	.70	.98
Supervisors	69	30	.44	.96	.26	.76	64	20	.34	.91

We generally found much higher multi-rater ICC estimates for worker abilities in this research than in the Army O*NET evaluation for all MOS common to both projects except for 31B. With the exception of 31B, the ICC (C,1) values were also generally higher for ability ratings in each of the respective MOS in this study. Although it appears that the participants in the present research made more reliable ratings of the abilities items, it is important to remember the large differences in sample size between this effort and the Army O*NET study.

The work styles reliability estimates are also presented in Table 21. In general, all multi-rater reliability estimates were above the O*NET standard (see the 19K incumbent ratings for an exception). Multi-rater reliability estimates ranged from .78 to .98. There were no systematic differences in reliability estimates between MOS. In contrast, there were some differences in multi-rater reliability estimates between rater types. For instance, 11B and 19K supervisors rated styles somewhat more reliably than did incumbents in these MOS.

The work values reliability estimates are presented in Table 22. In general, all multi-rater reliability estimates were sufficiently high, ranging from .92 to .97. There were no systematic differences in reliability estimates between MOS across ratings, which ranged from .94 to .97. Likewise, there were no systematic differences between multi-rater reliability estimates between rater types across these ratings.

The work interests reliability estimates presented in Table 22 range from .94 to .97. There were no systematic differences in reliability estimates between MOS or rater types.

Table 22. ICCs of Work Values and Interests Ratings by MOS and Rater Type

MOS/Rater Type	N	Number of Values	Work Values		N	Number of Interests	Work Interests	
			ICC (C,1)	ICC (C,k)			ICC (C,1)	ICC (C,k)
11B	48	30	.38	.95	56	30	.42	.96
Incumbents	7	30	.40	.95	8	30	.46	.96
Supervisors	41	30	.36	.94	48	30	.41	.95
19K	47	30	.36	.94	52	30	.37	.95
Incumbents	7	30	.45	.96	10	30	.35	.94
Supervisors	40	30	.35	.94	42	30	.37	.95
25U	168	30	.29	.93	180	30	.35	.94
Incumbents	42	30	.36	.94	44	30	.39	.95
Supervisors	126	30	.27	.92	136	30	.34	.94
31B	74	30	.46	.96	93	30	.44	.96
Incumbents	8	30	.47	.96	13	30	.54	.97
Supervisors	66	30	.43	.96	80	30	.43	.96
63B	42	30	.38	.95	52	30	.41	.95
Incumbents	10	30	.31	.93	14	30	.34	.94
Supervisors	32	30	.40	.95	38	30	.44	.96
88M	100	30	.49	.97	113	30	.51	.97
Incumbents	17	30	.40	.95	18	30	.50	.97
Supervisors	83	30	.52	.97	95	30	.52	.97

Summary of the Inter-Rater Reliability Analyses

In general, we found that both the work-oriented and worker-oriented descriptors were rated reliably by both incumbents and supervisors both within and across MOS. Very few descriptors demonstrated ICC (C,k) values less than the O*NET .80 standard (McCloy et al., 1998). However, the ICC (C,1) values were not quite as high as the values observed in the Army O*NET Evaluation. The single-rater reliability differences were most likely due to rater training and proctoring in the Army O*NET study, but absent in the present research. The general pattern was that the worker-oriented domain descriptors were rated slightly more reliably than the work-oriented domain descriptors.

Did Incumbents and Supervisors Agree in their Ratings?

Three statistics are reported in the Tables 23 to 26: (a) profile similarity (r) in item ratings, (b) mean of the standardized mean item differences (or d), and (c) the average absolute d (or $|d|$) on the items. The profile similarity (r) reflects the agreement between incumbent and supervisor ratings within each domain, and was computed by taking the average correlation between the raters' ratings of descriptors within each domain. Higher values of r indicate a higher degree of similarity in the shape of the profiles between incumbent and supervisor ratings of the items in each domain. The mean of the standardized mean item differences (or d) represents the difference in magnitude between incumbent and supervisor ratings of the items comprising a domain. The standardized mean differences were computed by calculating the difference between the mean incumbent and supervisor ratings of each item within each domain, standardizing the difference (i.e., dividing the difference by the pooled standard deviation of each item), and taking the average difference across items within the domain. Positive values mean that the average ratings made by supervisors were higher than those made by incumbents. Large values, positive or negative, indicate less agreement in the mean ratings of incumbents and supervisors. Finally, we calculated the average absolute d . This value was calculated by taking the absolute difference between the mean incumbent and supervisor ratings of each item within each domain. By taking the absolute value of d , we were able to examine the pure difference between the incumbent and supervisor ratings within each MOS and each domain without concern of directionality and its influence on the mean difference calculation.

Work-Oriented Descriptor Similarities and Mean Rater Differences

The work-oriented similarities and mean rater differences are reported in Tables 23 to 25. Table 23 reports the profile similarity and mean rater differences for the work activities domain by scale, broken out by MOS and rater type. The similarity indices ranged from .33 to .88 for all three types of activity ratings. Incumbents and supervisors tended to agree on the trainability ($r = .82$) of the activities comprising the domain to a greater extent than they did on importance and criticality, but the mean ratings of importance and criticality also reflected a high degree of similarity ($r = .73$ for both importance and criticality). Across MOS, there were some differences in profile similarities for importance, trainability, and criticality. In particular, the similarity index for 25U was far lower than the other MOS for ratings of importance and criticality, but the index for the trainability ratings was in line with the other MOS.

Table 23. Profile Similarity and Mean Differences in Activities Ratings between Incumbents and Supervisors

Domain/MOS	<i>r</i>	Mean Differences	
		Mean of <i>d</i>	Average Absolute <i>d</i>
Work Activities (Importance)	.73	-.11	.27
11B	.82	-.05	.20
19K	.78	-.50	.51
25U	.33	.14	.27
31B	.81	-.23	.25
63B	.76	-.24	.26
88M	.78	.18	.22
Work Activities (Trainability)	.82	.26	.30
11B	.87	.32	.32
19K	.75	.20	.31
25U	.79	.10	.15
31B	.85	.20	.22
63B	.77	.05	.19
88M	.81	.64	.65
Work Activities (Criticality)	.73	-.06	.25
11B	.83	-.08	.22
19K	.77	-.32	.34
25U	.43	.17	.27
31B	.74	-.18	.25
63B	.76	-.06	.18
88M	.78	.25	.29

Note. Positive *ds* indicate that the average ratings made by supervisors were higher than those made by incumbents.

The standardized mean differences between incumbent and supervisor ratings of activities, represented by mean *ds*, ranged between -.50 to .64 across the three types of activities ratings. The mean *d* for importance and criticality ratings indicated that incumbents generally made slightly higher ratings (-.11 and -.06, respectively) relative to supervisors. In contrast, the mean *d* for trainability ratings indicated that supervisors generally rated items as more difficult to learn than did incumbents (.26).

In comparing MOS-specific values to the sample-weighted mean *d* for each type of activity rating, divergence from the mean *d* exists for some MOS. For importance ratings, the *d* value for 19K indicated that the incumbents generally rated the activities as more important than the supervisors rated these same activities (-.50). However, this difference is markedly larger than the sample-weighted mean *d* for importance ratings (*d* = -.11). For trainability ratings, 63B and 88M diverged from the mean *d*. While the *d* value for 63B indicated that incumbents and supervisors were more in agreement (e.g., .05 compared to .26) on their ratings of trainability than the average across MOS, 88M indicated a far greater difference (e.g., .64 compared to .26) between incumbent and supervisor ratings of trainability. Finally, for criticality ratings, 19K and 88M diverged from the mean *d*. The supervisors and incumbents in 19K differed to a larger extent on level of criticality than the sample-weighted mean *d*, with incumbents in 19K tending to rate the activities as more critical (just as they had rated them as more important) than the supervisors. In contrast, although the supervisors and incumbents in 88M also reflected a high degree of similarity on ratings of criticality, supervisors in 88M tended to make higher ratings of trainability than did incumbents. It should be noted that across MOS, supervisors consistently

rated the activities comprising the domain as more difficult to train. This type of pattern did not occur for ratings of importance or criticality.

The absolute mean differences ($|d|$) between incumbent and supervisor ratings of activities across MOS ranged from .18 to .65. The average absolute d s were .27, .30, and .25, respectively, for ratings of importance, trainability, and criticality. Despite the fact that supervisors may have rated the activities as more important, trainable, or difficult than the incumbents (or the converse), the absolute values of these differences were not typically very large.

There was some divergence across MOS. For instance, raters in 19K generally differed to a larger extent on the level of importance of activities than the other MOS. Likewise, raters in 88M differed in their ratings of level of trainability of activities to a larger extent than the other MOS.

Table 24 reports the profile similarity and mean differences for the work activities categories by MOS and rater type. The similarity indices, represented by correlations, ranged between -.29 and .93 across all three ratings. Incumbents and supervisors tended to agree to a greater extent on the trainability ($r = .68$) of the activities categories than they did on the importance and criticality ($r = .53$ and $r = .55$, respectively), but the mean ratings of importance and criticality also reflected a moderate degree of similarity. Across MOS, there were some large differences in profile similarities for importance, trainability, and criticality. For instance, the correlations between incumbent and supervisor ratings of importance for 11B ($r = .92$) and 88M ($r = .85$) were much larger than the sample-weighted mean correlation for importance ratings across MOS, whereas the correlation for importance ratings for 63B was much smaller ($r = .13$). Similarly, the correlations for trainability ($r = .05$) and criticality ($r = -.29$) ratings were much lower for 63B than the sample-weighted mean d . It is important to note that despite the lack of a large mean difference ($d = -.20$) in the average criticality ratings for 63B, the rank orders of the items by incumbents and supervisors directly contributed to the negative correlation. In contrast, the correlations between incumbent-supervisor criticality ratings for 11B ($r = .93$) and 88M ($r = .91$) were much larger than the sample-weighted mean similarity index.

The standardized mean differences, represented by mean d s, ranged between -.32 to .90. The mean d for importance ratings indicated that incumbents generally made slightly higher ratings (-.12), as did the mean d for criticality ratings (-.08). In contrast, supervisors generally rated items as more difficult to train than did incumbents (mean $d = .36$).

For importance ratings, the d value for 19K indicated that the incumbents generally rated the activities comprising the domain as more important than the supervisors rated these same activities (-.32). For trainability ratings, 88M diverged from the mean d such that there was a greater difference (i.e., .90 compared to .36) between incumbent and supervisor ratings of trainability than the sample-weighted mean d . It is important to note that despite the high degree of similarity between incumbent and supervisor trainability ratings ($r = .79$), there was still a large difference in magnitude between the incumbent and supervisor average ratings.

Table 24. Profile Similarity and Mean Differences in Work Activities Categories Ratings between Incumbents and Supervisors

Domain/MOS	<i>r</i>	Mean Differences	
		Mean of <i>d</i>	Average Absolute <i>d</i>
Work Activities-Categories (Importance)	.53	-.12	.25
11B	.92	-.05	.16
19K	.47	-.32	.38
25U	.78	.15	.19
31B	.37	-.28	.28
63B	.13	-.29	.30
88M	.85	.15	.18
Work Activities-Categories (Trainability)	.68	.36	.40
11B	.73	.50	.50
19K	.71	.51	.51
25U	.81	-.02	.11
31B	.82	-.02	.08
63B	.05	.25	.29
88M	.79	.90	.90
Work Activities-Categories (Criticality)	.55	-.08	.27
11B	.93	-.13	.23
19K	.27	-.24	.36
25U	.79	.15	.20
31B	.42	-.20	.20
63B	-.29	-.20	.33
88M	.91	.34	.34

Note. Positive *ds* indicate that the average ratings made by supervisors were higher than those made by incumbents.

The absolute mean differences ($|d|$) between incumbent and supervisor ratings of activities categories across MOS ranged from .08 to .90. The average absolute *ds* were .25, .40, and .27, respectively, for the importance, trainability, and criticality ratings. There was some divergence across MOS. For instance, raters in 88M generally differed to a larger extent on the perceived levels of activity category trainability than the sample-weighted mean $|d|$. However, within the other activities categories ratings, there were more uniform absolute differences in the ratings of incumbents and supervisors. The absolute differences in the ratings of trainability for the activities categories were the largest of the three scales.

Table 25 reports the profile similarity and mean differences for the work context ratings by MOS, rater type, and environment. The similarity indices ranged from .58 to .95 for both types of context ratings (combat vs. non-combat). Incumbents and supervisors tended to agree to a greater extent on the work context ratings in combat environments ($r = .86$) than they did on the work context ratings in non-combat environments ($r = .78$), but the ratings for both types of environments reflect a high degree of similarity. Across MOS, there were very few differences between the profile similarities for context ratings, especially within the ratings of work context in combat environments (i.e., the correlations ranged from .80 to .92, indicating that supervisors and incumbents tend to view the context of the work in a similar fashion in combat environments). However, the correlations between incumbent and supervisor ratings of context in non-combat for 19K ($r = .58$) and 63B ($r = .68$) were somewhat lower than the sample-weighted mean correlation across MOS ($r = .78$). Nevertheless, both of these values reflect at least moderate levels of similarity between ratings of the work context in non-combat environments by supervisors and incumbents.

The standardized mean differences (mean ds), ranged between $-.36$ to $.61$. They show that incumbents generally made slightly higher non-combat environment ratings ($-.10$), but that supervisor ratings in combat environments ($.15$) were slightly higher than ratings made by incumbents.

There were few differences between the MOS-specific ds and the sample-weighted mean d for the context ratings in non-combat environments. Similar to the work activities ratings, the directionality of differences (i.e., whether supervisors' or incumbents' ratings were higher) varied across MOS. However, the range of differences between supervisor and incumbent ratings was generally small in non-combat environments. Similarly, the differences between supervisor and incumbent ratings of context in combat environments were relatively uniform in magnitude but differed in directionality. The exception to this pattern was 31B in which supervisors rated the work context items as being more important in a combat environment than incumbents.

The absolute mean differences ($|d|$) between incumbent and supervisor ratings of work context in both combat and non-combat environments across MOS ranged from $.17$ to $.61$. The average absolute ds were $.32$ and $.34$, respectively, for ratings of work context in both types of environment. There was relatively little divergence across MOS, although the $|d|$ for incumbent and supervisor ratings in 19K was somewhat higher than the sample-weighted mean $|d|$. In contrast to the relatively small degree of variation on $|d|$ in non-combat ratings, combat environment context ratings demonstrated a larger degree of variation across MOS. For instance, raters in 31B differed to a larger extent on the degree to which the work context items were characteristic in a combat environment to a much greater degree than the sample-weighted mean $|d|$. In contrast, the average context ratings in non-combat environments of supervisors and incumbents in 25U reflected a smaller degree of difference than the sample-weighted mean $|d|$.

Table 25. Profile Similarity and Mean Differences in Work Context Ratings between Incumbents and Supervisors

Domain/MOS	r	Mean Differences	
		Mean of d	Average Absolute d
Work Context (Non-Combat)	.78	-.10	.32
11B	.80	-.28	.35
19K	.58	-.36	.56
25U	.95	.02	.17
31B	.88	.22	.27
63B	.68	.06	.30
88M	.80	-.24	.31
Work Context (Combat)	.86	.15	.34
11B	.89	-.21	.34
19K	.80	.34	.46
25U	.92	.15	.19
31B	.84	.61	.61
63B	.82	.05	.26
88M	.89	-.06	.20

Note. Positive ds indicate that the average ratings made by supervisors were higher than those made by incumbents.

Worker-Oriented Descriptor Similarities and Mean Rater Differences

Table 26 reports the profile similarity and mean differences for the worker-oriented domains. The similarity indices ranged from .23 to .93 across all domains. Incumbents and supervisors tended to agree to a greater extent on the ratings of interests ($r = .86$) than on the ratings of abilities, styles, and values ($r = .76$, $r = .61$, and $r = .70$, respectively), but the correlations for abilities, styles, and values all reflected a large degree of similarity between incumbent and supervisor ratings. Across worker-oriented domains and MOS, there were some differences in profile similarity indices in comparison to the sample-weighted mean ds . For instance, the correlation between incumbent and supervisor ratings of abilities for 11B ($r = .51$) was somewhat lower than the sample-weighted mean correlation for importance ratings across MOS. Similarly, the correlation for styles ratings for 63B ($r = .23$) was much smaller than the sample-weighted mean correlation. The correlations for values and interests were relatively uniform (and high) across MOS. In general, the profile similarity indices for worker-oriented domains were high across MOS.

Table 26. Profile Similarity and Mean Differences in Work Abilities, Styles, Values and Interests Ratings between Incumbents and Supervisors

Domain/MOS	r	Mean Differences	
		Mean of d	Average Absolute d
Abilities	.76	-.07	.29
11B	.73	-.23	.35
19K	.51	-.36	.48
25U	.95	.18	.20
31B	.86	-.18	.25
63B	.70	.30	.34
88M	.79	-.13	.19
Styles	.61	-.10	.42
11B	.76	-.62	.62
19K	.67	-.51	.68
25U	.81	.36	.39
31B	.53	-.29	.33
63B	.23	.48	.51
88M	.68	-.04	.17
Values	.70	.19	.34
11B	.76	.55	.55
19K	.66	-.13	.29
25U	.68	.08	.22
31B	.69	.74	.74
63B	.78	-.13	.20
88M	.61	.06	.23
Interests	.86	-.05	.24
11B	.86	.16	.30
19K	.86	-.29	.34
25U	.93	-.08	.15
31B	.85	.11	.27
63B	.88	-.09	.20
88M	.80	-.10	.24

Note. Positive ds indicate that the average ratings made by supervisors were higher than those made by incumbents.

The standardized mean differences ranged between $-.62$ to $.74$. The mean d s for abilities, styles, and interests indicated that incumbents generally made slightly higher ratings ($-.07$, $-.10$, and $-.05$, respectively) than supervisors; however, the mean d for values ratings indicated that supervisors generally made slightly higher ratings ($.19$) than incumbents.

In comparing MOS-specific values to the sample-weighted mean d for each type of worker-oriented domain, some divergence from the mean d shows up across MOS within each domain. For abilities ratings, the d values for 19K ($d = -.36$) and 63B ($d = .30$) indicated a greater difference from the sample-weighted mean than did the other MOS. Although the directionality of these two d values differs, indicating that supervisors in 63B rated the abilities items more highly than did incumbents while incumbents in 19K rated the abilities items more highly, the magnitude of both differences is comparable and fairly large in comparison to the sample-weighted mean d for abilities ratings. For styles ratings, both 11B and 19K demonstrate d values in the same direction as the sample-weighted mean d , indicating that incumbents rated the work styles items more highly than did the supervisors in these MOS; however, both values ($d = -.62$, and $d = -.51$, respectively) are much larger than the sample-weighted mean d for styles ($d = -.10$). For values ratings, supervisors in 11B and in 31B both rated the values items more highly than did the incumbents, which is in line with the sample-weighted mean d for values. However, the d values in these MOS ($d = .55$, and $d = .74$, respectively) are much larger than the sample-weighted mean d ($.19$).

The absolute mean differences ($|d|$) between incumbent and supervisor ratings of worker-oriented domains across MOS ranged from $.15$ to $.74$. The average absolute d s were $.29$, $.42$, $.34$, and $.24$ for abilities, styles, values, and interests, respectively. In comparing MOS-specific values to the sample-weighted mean $|d|$ for each domain, there was some divergence across MOS. Raters in 19K ($.48$) generally differed to a larger extent on the ratings of abilities than the sample-weighted mean $|d|$ for abilities ($.29$). Similarly, 11B ($.62$) and 19K ($.68$) exhibited much larger differences between the supervisor and incumbent ratings of styles than the sample-weighted mean $|d|$ ($.42$) exhibited. Finally, 11B ($.55$) and 31B ($.74$) also differed more on supervisor and incumbent ratings of values than the sample-weighted $|d|$ ($.34$) indicated.

Despite these larger than expected absolute differences, it is important to note that for a number of these MOS, the similarity indices were quite high. The high degree of similarity and the moderate degrees of difference for 11B and 19K ratings of styles, and for 11B and 31B ratings of values, are not mutually exclusive. For these MOS, the average means of the supervisor and incumbent ratings of items were different, but they reflected a similar rank ordering by item across rater type.

Summary of Incumbent-Supervisor Agreement in Ratings

Within the work-oriented descriptors, supervisor and incumbent ratings of activities and activities categories descriptors generally demonstrated a high degree of similarity; however, activities categories correlations were somewhat lower than the correlations for the full set of work activities items. In general, incumbent ratings were higher than supervisors for ratings of importance and criticality, while trainability ratings were higher for supervisors across activities and activities categories. Absolute standardized mean differences were generally low across all three types of ratings for work activities and categories, indicating a low level of difference between the mean ratings across the items comprising both scales.

Also within the work-oriented descriptors domain, the work context supervisor and incumbent ratings generally indicated that the similarity indices were high for both work context descriptors in a non-combat environment and in a combat environment; however, the similarity indices were higher for the combat environment ratings. In non-combat environments, incumbents made higher ratings on average than supervisors; however, in combat environments, supervisor ratings were higher. Neither of these differences was large and was supported by the relatively small differences evident in the absolute standardized mean differences.

Within the worker-oriented descriptors, the similarity indices were higher than those for the work-oriented descriptors, with the values indices being the highest of the four domains. For abilities, styles, and interests, the incumbents generally rated the descriptors more highly than did supervisors; supervisors generally made higher ratings than incumbents for values. The absolute standardized mean differences for the worker-oriented descriptors were generally in line with the work-oriented descriptor differences.

In summary, we found relatively high degrees of similarities and small differences between incumbent and supervisor ratings for both work-oriented and worker-oriented domains both within and across MOS.

Did Ratings from the Questionnaires Differentiate among MOS?

Consistent with the Army O*NET Evaluation, we used a multi-trait multi-method approach (Campbell & Fiske, 1959) to answer this question. The profile similarities and mean differences among MOS are presented in Tables 27 and 28. The numbers below the diagonal are cross-MOS correlations in the profile of ratings on the targeted domain (e.g., how did the ability ratings for 11B correlate with those of 19K? Or 31B? Or 63B?). The numbers above the diagonal reflect the average absolute mean standardized difference (or d) in the ratings between MOS A versus those of MOS B (i.e., how much did the ability ratings for 11B differ from those of 19K, on average, in standard deviation?).

The numbers on the diagonal correspond to the two aforementioned metrics but capture that information *within* an MOS, specifically between the two rater types (incumbents versus supervisors). The number before the "/" represents the correlation between the incumbents' and supervisors' ratings on the domain in question for the selected MOS, whereas the number after the "/" reflects the average absolute mean standardized difference (or d) between the incumbent and supervisor ratings for the same MOS.

Consistent with a multi-trait multi-method framework, high profile similarities (or low mean differences) among different rater types for the same MOS would indicate convergent validity. That is, different methods (i.e., rater types) yield converging results for the same MOS. If these convergent validity estimates are higher than the corresponding estimates between different MOS, there is evidence of discriminant or divergent validity. Divergent validity would indicate that the descriptors are differentiating across MOS. In sum, it would be desirable if (a) the differences in the ratings between the two rater types within an MOS were smaller and their similarity higher than the ratings across different MOS and (b) the pattern of similarity and

differences in the ratings across different MOS followed the pattern one would expect. As an example of the latter, those MOS that are more similar to each other in their job requirements, say 11B and 19K, would show greater similarity and smaller differences in their ratings than those MOS that were more dissimilar, say 11B and 25U.

MOS Differentiation with Work-Oriented Descriptors

Table 27 presents the similarity and mean differences in work context ratings in non-combat environments among the MOS. The results for the work context ratings in non-combat environments generally reflected correlations between MOS that were comparable to the correlations within MOS across rater types. For context ratings in non-combat environments, the within MOS average correlation was .78, while the between MOS average correlation was .66. Similarly, for combat environment ratings, the average correlation within MOS was .86, while the between MOS correlation was .77 (see Table 27). For some MOS combinations, however, the correlations between the MOS were greater than the correlations between incumbent and supervisor ratings within the MOS. For instance, the similarities for work context ratings in a non-combat environment between 11B, 19K, 63B, and 88M were stronger than the within-MOS correlations between raters in these MOS. Likewise, the difference scores between similar MOS (e.g., 11B and 19K) were generally smaller than the difference scores between incumbent and supervisor ratings within both of these MOS. Similarly, the relationship between 63B and 88M resulted in a smaller difference score than the difference score for incumbent and supervisor ratings within both of these MOS. Finally, dissimilar MOS demonstrated small similarity indices in non-combat environments (e.g., the correlations between 19K and 31B and between 25U and 31B were small).

Table 27. Profile Similarity and Mean Differences in Work Context Ratings among MOS

	<i>11B</i>	<i>19K</i>	<i>25U</i>	<i>31B</i>	<i>63B</i>	<i>88M</i>
Work Context –Non-Combat						
11B	.80/.35	.20	.37	.35	.25	.26
19K	.86	.58/.56	.42	.45	.21	.27
25U	.57	.55	.95/.17	.49	.27	.29
31B	.53	.40	.45	.88/.27	.43	.48
63B	.75	.87	.72	.39	.68/.30	.20
88M	.83	.88	.72	.49	.88	.80/.31
Work Context –Combat						
11B	.89/.34	.15	.51	.25	.43	.26
19K	.96	.80/.46	.50	.26	.40	.22
25U	.52	.50	.92/.19	.40	.21	.35
31B	.93	.89	.45	.84/.61	.32	.22
63B	.78	.79	.81	.71	.82/.26	.23
88M	.91	.92	.65	.86	.89	.89/.20

Table 27 also presents the similarity indices and mean differences in work context ratings in combat environments. The results for the work context ratings in combat environments generally reflected correlations between MOS that were comparable to the correlations within MOS across rater types. For some MOS combinations, however, the correlations between the MOS were far greater than the correlations between incumbent and supervisor ratings within multiple MOS. For instance, the similarities for work context ratings in a combat environment between 11B and 19K, 11B, 31B, 11B and 88M, were generally stronger than the within-MOS

correlations between raters for these MOS. Likewise, the difference scores between similar MOS (e.g., 11B and 19K) were generally smaller than the difference scores between incumbent and supervisor ratings within both of these MOS. However, the correlations among and between dissimilar MOS in combat environments were far greater than those in non-combat environments (e.g., the correlation between 19K and 31B goes from .40 to .89 when the context items are rated in a combat environment). The similarity indices indicate that the introduction of the combat environment decreases the degree of discriminant validity across MOS.

Table 28 provides a high level summary of the data presented in Table 27. Overall, supervisors and incumbents rated the work context of their MOS similarly, on average, across both non-combat and combat based environments. As expected, the work context ratings in a combat environment were more similar across MOS than those context ratings in a non-combat environment.

Table 28. Average Profile Similarity and Mean Difference Statistics for the Work-Oriented Descriptors

	Work Activities			Work Activities Categories			Work Context	
	Importance	Training	Criticality	Importance	Training	Criticality	Non-Combat	Combat
Correlations								
By MOS	--	--	--	--	--	--	0.66	0.77
By Rater Type	0.73	0.82	0.73	0.53	0.68	0.55	0.78	0.86
Mean Differences								
By MOS	--	--	--	--	--	--	0.20	0.18
By Rater Type	0.31	0.26	0.25	0.25	0.40	0.28	0.33	0.34

Note. Cross-MOS work activity ratings were not collected. Accordingly, information on the correlations and mean differences in work activity ratings could not be computed.

MOS Differentiation among Worker-Oriented Descriptors

Table 29 presents the similarity and mean differences in worker-related characteristics ratings among the MOS. The correlations between the MOS for all worker-related characteristics were generally smaller than the within MOS ratings, except in the case of work values. For work values, the sample-weighted mean correlation was .79 while the average within MOS correlation was only .70. In contrast, but consistent with the correlations, abilities and interests produced larger differences between MOS than within MOS (see Table 30).

Summary of MOS Differentiation Analyses

The results of the differentiation analyses showed that the descriptors hold promise for differentiating across MOS. For the work-oriented descriptors (i.e., work context), the profile similarities across MOS were lower, on average, than the similarities within MOS. Among the worker-oriented descriptors, this same pattern held for work abilities and work interests. For work styles and values, however, the profile similarities across MOS were comparable to or somewhat lower than the profile similarities within an MOS.

Table 29. Profile Similarity and Mean Differences in Worker-Related Characteristics Ratings among MOS by Domain

	<i>11B</i>	<i>19K</i>	<i>25U</i>	<i>31B</i>	<i>63B</i>	<i>88M</i>
Work Abilities						
11B	.73/.35	.31	.62	.33	.38	.41
19K	.75	.51/.48	.46	.22	.20	.19
25U	-.06	.27	.95/.20	.37	.32	.35
31B	.46	.66	.70	.86/.25	.27	.26
63B	.40	.59	.62	.58	.70/.34	.16
88M	.50	.86	.49	.82	.64	.79/.19
Work Styles						
11B	.76/.62	.21	.27	.28	.34	.26
19K	.88	.67/.68	.20	.17	.20	.14
25U	.53	.64	.81/.39	.20	.18	.23
31B	.54	.65	.54	.53/.33	.24	.20
63B	.63	.73	.79	.43	.23/.51	.21
88M	.72	.82	.49	.63	.65	.68/.17
Work Values						
11B	.76/.55	.12	.21	.23	.18	.15
19K	.93	.66/.29	.23	.23	.18	.17
25U	.75	.77	.68/.22	.18	.14	.16
31B	.70	.79	.73	.69/.74	.21	.19
63B	.83	.84	.83	.62	.78/.20	.12
88M	.94	.92	.72	.72	.82	.61/.23
Work Interests						
11B	.86/.30	.16	.55	.40	.32	.20
19K	.95	.86/.34	.46	.38	.24	.16
25U	.35	.48	.93/.15	.46	.36	.39
31B	.68	.66	.34	.85/.27	.49	.39
63B	.75	.86	.68	.42	.88/.20	.15
88M	.89	.93	.48	.61	.90	.80/.24

Table 30. Average Profile Similarity and Mean Difference Statistics for the Worker-Oriented Descriptors

	Work Abilities	Work Styles	Work Values	Work Interests
Correlations				
By MOS	0.55	0.64	0.79	0.67
By Rater Type	0.76	0.61	0.70	0.86
Mean Differences				
By MOS	0.32	0.22	0.18	0.34
By Rater Type	0.30	0.45	0.37	0.25

The results were less supportive on this point when examining cross-MOS mean differences in ratings. In part, these results may be a reflection of the content of the questionnaires. Each questionnaire may contain a number of items that were not particularly useful for differentiating across MOS, or this particular sample of MOS. Those items would in turn lower the overall mean differences in the ratings reported for any given questionnaire.

Did Participants React Favorably to the Questionnaires?

Participants were asked to rate each descriptor domain on the following: ease of use, instructions, clarity of statements, relevance of questions to MOS, and usefulness for describing MOS requirements. Results from the reaction questionnaires can be found in Tables 31 and 32. These tables include: (a) the mean response for each MOS per item, (b) the *SD* for each MOS per item, and (c) the percent of responses that rated each item a 4 or 5 (defined here as “good”). We also calculated the sample-weighted mean and standard deviations for each domain across all MOS in order to identify any MOS that exhibited deviations from the general pattern of responses to the reaction items.

The work activities items were generally viewed as easy to use, clear, relevant, and useful. This is a positive sign for the work activities items, as these items were written specifically for each MOS. The work context ratings were generally high as well. Within the work context domain, the lowest ratings were typically assigned to the question, “Usefulness for describing the requirements of your MOS” (activities $M = 4.05$; context $M = 3.72$). The mean for the work context item regarding usefulness is the lowest sample-weighted mean for any domain on this item. It is also the lowest sample-weighted mean for any of the reaction questions. Similarly, the sample-weighted mean for the question, “Relevance of questions to your MOS” in the work context domain was also smaller than for most other domains. Therefore, it appears that there was less satisfaction overall with respect to the items comprising the work context domains; however, these means are still high (i.e., each mean for the work context reaction questions is over 3.50).

Within the worker-oriented domains (work abilities, styles, interests, and values), the ratings of work styles were generally the highest. However, across all four domains, the reaction ratings were typically high (i.e., greater than 4.00). The sample-weighted means for the reactions to the interest items were slightly lower than the other domains. For work abilities and styles, 63B generally reported lower means than the other MOS. This was not the case for work interests and values.

Reactions to work abilities, styles, values, and interests were generally more similar across MOS than were reactions to the work activities and context reactions as indicated by the lower *SDs* for worker-oriented descriptors. In contrast, the percentage of respondents rating the work-oriented domain items as “good” was generally higher than the percentage of respondents rating the worker-oriented domain items as “good.”

Overall, participants rated the questionnaires favorably, irrespective of the domain, their MOS, or their rank. Mean responses to all reaction measures items were generally positive, and the majority of all participants within any MOS completing the questionnaire rated the items as “good.” In comparative terms, the worker-oriented questionnaires received less favorable ratings, on average, than the work-oriented questionnaires. Similarly, the worker-oriented questionnaires had a lower percentage of respondents rating the questionnaires on the different reaction dimensions as “good.” However, participant reactions were still generally positive in absolute terms, with a majority of the participants rating each of the questionnaires as “good.”

Table 31. Respondent Reactions to Work-Oriented Questionnaires

Domain/MOS	<i>N</i>	Ease of Use (1-5)			Instructions (1-5)			Clarity (1-5)			Relevance to MOS (1-5)			Usefulness (1-5)			
		<i>M</i>	<i>SD</i>	% <i>Good</i>	<i>M</i>	<i>SD</i>	% <i>Good</i>	<i>M</i>	<i>SD</i>	% <i>Good</i>	<i>M</i>	<i>SD</i>	% <i>Good</i>	<i>M</i>	<i>SD</i>	% <i>Good</i>	
Work Activities																	
11B	66	4.09	.89	80.6%	4.03	.88	83.6%	4.06	0.89	83.6%	4.44	.79	88.1%	4.12	.79	83.6%	
19K	47-48	4.10	.81	81.6%	4.25	.79	87.7%	4.21	0.81	83.7%	4.31	.90	79.6%	4.06	1.01	75.5%	
25U	158-161	4.04	.81	82.8%	4.11	.76	85.3%	3.99	0.86	78.5%	4.29	.86	82.2%	4.02	1.01	76.7%	
31B	106-108	4.16	.81	80.9%	4.08	.86	80.9%	4.03	0.88	77.3%	4.10	.90	80.0%	3.89	.98	72.7%	
63B	62-63	4.03	.90	80.0%	3.98	.80	78.5%	3.98	0.85	81.5%	4.23	.80	80.0%	3.98	.79	76.9%	
88M	93-95	4.23	.78	86.6%	4.19	.77	82.5%	4.17	0.88	80.4%	4.38	.84	84.5%	4.25	.87	85.3%	
Total <i>M</i>		4.11	.83		4.11	.81		4.06	0.86		4.28	.85		4.05	.91		
Work Context																	
11B	74-75	4.27	.66	77.7%	4.25	.70	77.7%	4.08	0.88	70.6%	3.80	.96	60.0%	3.75	1.05	57.7%	
19K	85-86	4.08	.69	77.2%	4.07	.72	76.1%	3.96	0.82	70.7%	3.91	.79	76.1%	3.72	.78	67.4%	
25U	255-257	4.23	.67	83.6%	4.33	.64	86.8%	4.02	0.83	74.3%	3.90	.74	69.6%	3.65	.88	59.6%	
31B	106-107	4.19	.75	82.1%	4.23	.64	84.6%	4.06	0.77	73.5%	4.11	.78	76.1%	3.96	.84	72.7%	
63B	72-73	3.97	.78	64.0%	3.95	.76	66.3%	3.85	0.83	59.6%	3.64	1.06	51.7%	3.60	.91	50.6%	
88M	147-149	4.02	.69	71.0%	3.97	.77	71.0%	3.94	0.74	67.1%	3.85	1.01	65.3%	3.72	1.04	61.9%	
Total <i>M</i>		744-748	4.14	.71	77.3%	4.17	.71	78.8%	3.99	0.81	70.2%	3.89	.87	67.4%	3.72	.92	61.6%

Table 32. Respondent Reactions to Worker-Oriented Questionnaires – Abilities, Styles, Values, and Interests

Domain/MOS	<i>N</i>	Ease of Use			Instructions			Clarity			Relevance to MOS			Usefulness		
		<i>M</i>	<i>SD</i>	<i>% Good</i>	<i>M</i>	<i>SD</i>	<i>% Good</i>	<i>M</i>	<i>SD</i>	<i>% Good</i>	<i>M</i>	<i>SD</i>	<i>% Good</i>	<i>M</i>	<i>SD</i>	<i>% Good</i>
Work Abilities																
11B	63	4.30	.56	76.0%	4.33	.51	78.5%	4.29	0.73	76.0%	4.41	.59	76.0%	4.40	.58	76.0%
19K	55-56	4.11	.53	67.6%	4.11	.53	67.6%	4.04	0.60	63.5%	4.05	.64	64.9%	3.98	.56	63.5%
25U	161-163	4.14	.65	71.0%	4.20	.66	72.0%	4.12	0.72	71.5%	4.04	.70	68.6%	4.01	.71	68.1%
31B	102-103	4.20	.68	79.3%	4.21	.68	78.5%	4.14	0.76	76.7%	4.15	.80	75.0%	4.12	.77	75.0%
63B	73-76	3.97	.91	76.7%	4.00	.85	74.2%	3.97	0.83	76.7%	3.93	.91	74.4%	3.92	.89	75.6%
88M	98	4.17	.75	68.2%	4.23	.59	69.8%	4.20	0.59	69.0%	4.03	.87	63.6%	3.98	.95	63.6%
Total <i>M</i>	554-561	4.15	.69	72.9%	4.19	.66	73.3%	4.13	0.72	72.3%	4.09	.77	70.0%	4.06	.78	69.8%
Work Styles																
11B	54-55	4.35	.55	67.1%	4.37	.52	67.1%	4.37	0.52	67.1%	4.47	.57	67.1%	4.42	.57	67.1%
19K	48-49	4.10	.59	56.8%	4.12	.60	58.1%	4.04	0.61	55.4%	4.02	.66	55.4%	3.94	.56	54.1%
25U	134-136	4.18	.69	59.9%	4.18	.69	59.4%	4.21	0.71	59.4%	4.17	.72	57.5%	4.16	.70	58.9%
31B	92-93	4.31	.57	75.9%	4.30	.59	75.0%	4.33	0.60	75.0%	4.27	.57	75.0%	4.27	.59	73.3%
63B	65-67	3.96	.91	67.4%	3.98	.86	65.1%	3.97	0.85	66.3%	3.99	.84	67.4%	3.95	.83	66.3%
88M	84-85	4.32	.56	62.8%	4.29	.55	62.8%	4.28	0.55	62.8%	4.30	.60	60.5%	4.26	.60	60.5%
Total <i>M</i>	483-486	4.21	.67	64.7%	4.21	.66	64.2%	4.22	0.67	64.1%	4.21	.68	63.2%	4.18	.67	63.1%

Table 32. (continued)

		Ease of Use (1-5)			Instructions (1-5)			Clarity (1-5)			Relevance to MOS (1-5)			Usefulness (1-5)		
Domain/MOS	<i>N</i>	<i>M</i>	<i>SD</i>	<i>% Good</i>	<i>M</i>	<i>SD</i>	<i>% Good</i>	<i>M</i>	<i>SD</i>	<i>% Good</i>	<i>M</i>	<i>SD</i>	<i>% Good</i>	<i>M</i>	<i>SD</i>	<i>% Good</i>
Work Values																
11B	49-50	4.14	.78	58.9%	4.06	.71	56.2%	4.04	.73	57.5%	4.04	.64	54.8%	4.06	.65	56.2%
19K	47	4.32	.78	67.2%	4.38	.64	67.2%	4.26	.71	62.7%	4.23	.67	64.2%	4.15	.62	64.2%
25U	168-170	4.17	.69	65.7%	4.13	.69	64.8%	4.06	.80	63.1%	4.04	.72	62.7%	4.03	.80	61.4%
31B	75	4.21	.79	61.3%	4.13	.89	58.6%	4.12	.85	57.7%	4.15	.80	59.5%	4.11	.80	58.6%
63B	43-44	4.25	.58	60.3%	4.26	.69	57.4%	4.23	.57	60.3%	4.20	.63	57.4%	4.23	.60	85.3%
88M	102-104	4.22	.56	68.8%	4.26	.52	69.4%	4.12	.69	67.4%	4.10	.64	66.7%	4.07	.61	67.4%
Total <i>M</i>	487-490	4.21	.69	64.3%	4.18	.70	63.2%	4.11	.75	62.1%	4.10	.70	61.6%	4.10	.70	61.5%
Work Interests																
11B	56-57	4.09	.87	65.8%	4.18	.68	68.5%	4.09	.79	63.0%	3.96	.84	58.9%	4.02	.81	63.0%
19K	52-53	4.11	.97	67.2%	4.17	.89	67.2%	4.19	.90	67.2%	4.06	.98	64.2%	3.96	.83	64.2%
25U	183-185	4.19	.58	72.9%	4.22	.57	73.3%	4.15	.72	69.5%	4.08	.73	67.0%	4.00	.78	67.4%
31B	93-94	4.20	.75	76.6%	4.18	.76	75.7%	4.13	.83	73.0%	4.05	.87	73.0%	4.06	.85	72.1%
63B	52-53	4.13	.71	66.2%	4.21	.70	67.7%	4.11	.67	67.7%	3.94	.72	58.8%	3.92	.70	58.8%
88M	116-119	4.20	.56	76.4%	4.20	.56	74.3%	4.14	.71	75.0%	3.95	.86	69.4%	3.95	.83	70.1%
Total <i>M</i>	558-561	4.17	.69	72.2%	4.20	.66	72.2%	4.14	.76	70.0%	4.02	.82	66.5%	3.99	.80	66.9%

V. Summary of Findings and Discussion

Major Findings and Limitations from the Field Test

The purpose of the field test was to evaluate the prototype job analysis approach. Our evaluation of the approach focused on answering the following questions:

- Were the jobs rated reliably using the field test questionnaires?
- Did incumbents and supervisors agree in their ratings?
- Did the ratings differentiate among jobs?
- Did participants react favorably to the questionnaires?

Overall, the results of the field test were encouraging, as evidenced by the following:

*The multi-rater reliability estimates were consistently .80 or greater, with many .90 and above, indicating that the mean ratings evidence sufficient reliability to support their use in operational decision-making (e.g., clustering MOS). These estimates were generally comparable to or exceeded those obtained on corresponding questionnaires administered to Army supervisors during an evaluation of the use of the existing O*NET system to describe Army jobs. In particular, the estimates for worker abilities obtained using the prototype approach were consistently higher than those observed using the O*NET work abilities questionnaire (a mean multi-rater ICC of .95 using the prototype approach versus .75 for the O*NET).*

Overall, there was greater within group variability than between group variability, indicating that most of the systematic variance in ratings was more likely a function of yet to be examined factors (e.g., duty position), rather than rater type. Differences between incumbent and supervisor ratings, on average, were generally low. The absolute standardized mean differences in ratings between the two rater types were, on average, about one-third of a standard deviation or smaller (mean $|d| \leq .33$), compared to the standard deviations within any rater type, which were typically .70 or greater. Further, there was no evidence that the differences followed a systematic pattern (i.e., one group consistently rated the descriptors within a given domain higher or lower than the other group). Similarly, the correlations in the ratings profile between the two rater types were generally high, on average (mean r of .53 or greater), with correlations in the .80s for work activities, evidence that incumbents and supervisors were generally consistent in the relative importance they assigned the job descriptors within any given domain.

Ratings from the questionnaires demonstrated promise for differentiating among MOS, although the differences were small in several instances, at least in absolute terms. With the exception of work styles and values, the mean correlations in rating profiles across MOS for any single domain were consistently lower, on average, than the correlations between rater types within an MOS (with differences in mean r ranging from .09 to .22). A similar pattern of results, however, was not evident when examining the average absolute standardized mean differences, where the mean differences between MOS were generally comparable to or lower than those reflecting differences between rater types within an MOS (the differences in mean $|d|$ ranged from .02 to .22). Among the worker-oriented questionnaires, the ones demonstrating the greatest potential, on average, for differentiating across MOS were worker abilities and interests, at least for this particular sample of MOS (Abilities: mean $r = .55$, mean $|d| = .32$; Interests: mean $r = .67$; mean $|d| = .34$).

Participants' reactions to the questionnaires and their content were generally positive, both in terms of their ease of use and their relevance for describing their MOS. About 62% or greater of the participants, on average, found the questionnaires easy to use and the instructions and content clear, with upwards of 87% of participants reacting that way to the work activities questionnaires. Similarly, 62% or more of the participants, on average, rated the questionnaires as useful and relevant to describing their MOS, with upwards of 88% of participants rating the work activities questionnaires in that manner. Overall, participants reacted more favorably to the work-oriented questionnaires, in particular the work activities questionnaire, than the worker-oriented questionnaires. This finding is not surprising, given that the work-oriented questionnaires, specifically those measuring work activities, contained the most job-specific content.

Although the results of the field test were generally promising, this research was not without its limitations. Specifically:

The response rates to the questionnaires were generally low, particularly for incumbents. Among incumbents, response rates were typically 5% or less. The response rates among supervisors tended to be two to three times that rate (10% to 15%), with a high close to 31%. There were also notable differences in response rates by MOS, with 25U generally evidencing the highest response rates and 11B and 19K demonstrating the lowest response rates. Although low, these response rates were consistent with those typically encountered by the Army's Occupational Analysis Program (OAP).

The ratings collected did not permit an examination of the similarities and differences in work activities by MOS. Although ratings were collected on work activities during the field test, these data were on the lower-order (or more job-specific) activities. As a result, no data were available to evaluate the psychometric properties and discriminate validity associated with a questionnaire measuring higher-order (or cross job) work activity descriptors. A preliminary set of those descriptors, based on the Job Activities and Task Categories generated for Project SYNVAL, were developed for this project and used during the O*NET evaluation (see Russell et al., 2008). Because priorities had to be made, a questionnaire measuring those cross job work activity descriptors was not administered in the field test.⁶ However, some evidence for the potential value of such a measure, albeit indirect, was evident in the results for the work interests questionnaire. The work interests questionnaire measured the importance of interests in performing various higher-order work activities required for the job. The content of the questionnaire was based on a slightly modified version of the O*NET's Generalized Work Activities (GWA) taxonomy. In general, the work interests measure evidenced higher multi-rater reliability estimates, greater discriminant validity, and more favorable participant reactions than the other worker-oriented questionnaires.

⁶ Further evidence for the utility of the cross job work activity descriptors can be found in a recently completed project that used an expanded version of these descriptors in a content validation of the ASVAB (Waters, Russell, Shaw, Allen, Sellman, & Geimer, 2009).

Although the evidence for discriminant validity was promising, the differences in ratings by MOS from any single domain were generally small in absolute terms. For example, the average absolute standardized mean differences by MOS ranged from .18 (Work Context and Work Values) to .34 (Work Interests). There are several potential explanations for this finding: (a) the nature of the MOS sampled; (b) the use of importance ratings, as opposed to level ratings or some alternative kind of rating exercise with greater potential to differentiate across MOS; (c) the questionnaires contained a number of items not useful for differentiating across MOS, or at least this particular sample of MOS; and (d) the use of web-based surveys to collect ratings, as opposed to some alternative data collection method (e.g., a workshop).

Looking at the Army's Model for Generating Job Analysis Data: Beyond the Descriptors

The work in this project has focused primarily on developing and field testing a job analysis approach to describe Army jobs that could be implemented Army-wide to support the many needs of its classification research program, from clustering MOS to criterion measurement development to validity generalization or transportation. Although personnel classification served as the primary driver, many elements of the approach were designed in a way that they could potentially support the Army's other job analysis needs as well, particularly training development. An implicit assumption has been that the Army's current model for collecting job analysis data would stay the same. Key elements of this model are that (a) MOS proponents are responsible for creating the job analysis descriptors, using guidance provided in Army regulations, and (b) the primary data collection strategy is through web-based questionnaires. In this section, we discuss why it is important to consider alternative models for conducting occupational analysis in the Army and to discuss how they might be changed to make it more feasible to maintain a new Army-wide job analysis system. Some of these strategies have been incorporated into the prototype questionnaire (e.g., use of standardized, cross-job descriptors).

Barriers to Collecting Army Job Analysis Information

Historically, it has been difficult for the Army to expend the personnel resources required to update job analysis information. This includes the time required for Army personnel to update the information that would go into a questionnaire as well as the time it takes for respondents to complete it. Over the past decade as the Army's operational tempo has increased dramatically, this constraint has become particularly severe, resulting in outdated job analysis information for many MOS. No matter how ideal the descriptors are, an Army-wide job analysis system that does not effectively minimize practical barriers to the generation and collection of this information will not be effective.

Strategies to Minimize Burden on Army Personnel for Developing Job Descriptors

Use Standardized Job Descriptors

Proponents under the Army Training and Doctrine Command (TRADOC) are responsible for maintaining job analysis information for their respective MOS. When requested by the proponent, ARI provides technical and administrative support through its OAP. The OAP provides assistance in developing descriptor content, programming and administering web-based questionnaires using the InterForm software application, and data analysis. An advantage of the job descriptors developed in the present research is that most of them, with the exception of the lower-order (or more job-specific) work activities, are standardized across MOS. This feature (a) reduces the burden on individual proponents to develop job-specific information, and (b) enables the Army to examine the similarities and differences across MOS, by providing a common basis of comparison. The results of the field test, and those of the Army's O*NET evaluation project, demonstrate that using a standardized approach for measuring targeted descriptor domains yields sufficiently reliable and valid data for characterizing the similarities and differences in MOS, supplementing the kinds of more job-specific information collected under the existing system, with minimal additional development costs to the Army.

Avoid Unnecessarily Detailed Job-Specific Descriptors

The lower-order work activities identified in the present research were intended to be less detailed, or specific, than the tasks prescribed in Army Regulation 350-70 and TRADOC Pamphlet 350-70-6. Defining lower-order work activities in a broader manner makes the activities relevant to many or all MOS rather than only a small number. Taking this approach is advantageous for several reasons. First, the prototype approach produces descriptors detailed enough to support criterion measurement development, as well as training development, but that can retain their relevancy longer than more traditional, detailed task statements. Second, it results in a smaller number of descriptors, making them easier to review, maintain, and collect data on, compared to the Army's traditional approach. Third, specifying work activity descriptors at a slightly more general level is consistent with the emphasis that several Army proponents (e.g., medics) have placed on principles-based training, rather than training based on a highly detailed series of tasks and proceduralized steps for accomplishing them. The shift in training program orientation is consistent with TRADOC's increasing emphasis on outcomes-based training

Although the prototype approach provides a useful model for generating lower-order work activities, input from Army job incumbents or supervisors will be needed to ensure that any work activity statements collected for future job analysis efforts are current and reasonably comprehensive. In the present research, we sought less input from job incumbents or supervisors than would most likely be required for an operational program because previous research on the MOS sampled in the present research provided great insight into the characteristics of those MOS. The currency of input from retired SMEs cannot be assured. Any new system would thereby benefit, and would be more cost effective in the long run, were existing Army Regulations revised to produce content that best meets its needs and constraints. As with any new system, initial efforts will demand greater labor resources than subsequent efforts, once inefficiencies have been identified and revised.

We estimate that the cost for generating the lower-order work activity descriptors following the prototype approach would initially run about \$15-25K per MOS (in FY 2010 dollars). This cost estimate assumes existing expertise with the prototype approach and modest support from SMEs with knowledge of the kinds of work activities performed by entry-level Soldiers in the MOS. Over time, the cost per MOS would decrease as the pool of work activity descriptors expand to reflect the kinds of activities required of a representative sample of MOS. At that point, existing work activity descriptors could be re-used or modified, as appropriate (e.g., by simply changing the kind of weapon-equipment-tool used), to describe similar MOS at minimal cost to the Army. Please note that the aforementioned cost estimate does not take into account methods of collecting, maintaining, and analyzing data.

Strategies to Increase Effectiveness of Data Collection Approach

A primary feature of the Army's existing job analysis model is that information is collected from incumbents and supervisors via web-based questionnaires. According to Army Regulation 370-50, updated job analysis information should be collected every 3 years. This guidance has largely been difficult to follow for the reasons cited above. Even for those MOS with updated information, Army job analysis surveys typically yield a response rate of just 10%-12%. Our experience in the field test was similar.

Two major obstacles to obtaining larger response rates are (a) reaching Soldiers and (b) motivating them to respond. In the present research, we e-mailed links to the questionnaires via Soldier AKO email accounts. This process is similar to the current operational system and resulted in comparably low response rates. As we have found in other web-based data collections with Soldiers, it appears that many Soldiers do not routinely access their AKO accounts. We do not have a good solution for an alternative approach. One would hope, however, that as the Army increasingly relies upon AKO to communicate with Soldiers, Soldiers will use their AKO accounts more frequently and thus be more reachable through this method.

Regarding efforts to enhance Soldiers' motivation to respond to job analytic surveys, because the Army does not allow certain forms of incentives (e.g., drawings for prizes or gift cards), there are fewer tactics available in the Army than in other contexts (e.g., private-sector organizations and the general public). Researchers typically hope that emphasizing the importance of a project's objectives will increase Soldier participation. Along with this approach, the present project attempted to make Soldiers more likely to participate by minimizing the time demands associated with completing its surveys. We employed a matrix sampling approach, whereby not all questionnaires are administered to all participants, to limit the time required of any given Soldier. Even though the resulting groups of questionnaires required 20 minutes or less to complete, our response rates were still generally low. Though we continue to favor strategies to limit questionnaire length or administration time (e.g., reducing the number of scales administered, using a matrix sampling approach), response rates of the present project suggest that such strategies may not significantly increase response rates.

Consider Collecting Data in Workshops

An alternative to the questionnaire-based approach used in the field test and by OAP would be to collect some or all of the required ratings through one or more workshops with participating Army job incumbents or supervisors. The present research found promising, but small cross-MOS differences. There are several possible reasons for this, to include the MOS sampled in the research. Another possibility is that a questionnaire-based approach is not conducive to reflecting the nuances in a 5-point rating scale that are essential to capturing cross-MOS differences; this was the primary motivation for including a ranking exercise in the questionnaires, first piloted and then dropped prior to the field test. It is possible that judgments made in a workshop setting would result in greater discrimination, because of the increased time for training and discussion among workshop participants. Such workshops were used successfully in the Army O*NET evaluation and could hold promise as an alternative to a large-scale questionnaire-based approach.

There are pros and cons to any given data collection method, including workshops. Whereas workshops could result in more reliable and discriminant ratings than a questionnaire-based approach, they would require more time from a smaller and potentially less representative sample of SMEs. Any method selected will result in trade-offs between costs and the quality of the information obtained, however measured.

Collect SLI Occupational Analysis Data Only From Supervisors

In this field test as in other questionnaire-based research involving Soldiers, response rates were consistently higher among senior than junior Soldiers. Although we observed differences in the ratings made between incumbents and supervisors, we found minimal evidence that the differences were systematic or attributable to substantive position differences and not other factors. If incumbents are not required to collect accurate job information, then they could be excluded from data collection, assuming the absence of reasons to include their input (e.g., if ratings are expected to differ by rating source). As with the other suggestions for data collection, decisions regarding sampling strategy should consider balancing anticipated information quality and information gathering efficiency according to project objectives.

Ensuring Training Requirements are Addressed

Although the primary objective of the present research was to ensure that the Army collects job analysis data that supports classification research, it is important not to lose sight of the importance of these data for training systems development. There are well-established Army regulations and guidelines associated with the Army's current job analysis system that are driven by training needs. These are engrained in the current system even if they are not strictly followed. For example, some proponents have moved toward training strategies that are no longer strictly task-focused. An example is medics who are increasingly being trained on medical principles that allow them to problem-solve when proceduralized task knowledge is insufficient.

Now may be the right time to involve TRADOC proponents in evaluating potential changes to the existing system. Do the processes being developed as part of ARI's line of

research adequately support the Army's current training requirements? Indeed, one can also ask if the Army's current job analysis process satisfy these requirements. To the extent to which they do not, what modifications, either small or large, should be made? It is certainly conceivable that the system field tested in the present research effort would provide some but not all the information needed to support TRADOC's needs. In that case, how would this new system feed into the existing processes specified by Army regulations and TRADOC pamphlets? Addressing such questions would clearly be key to any implementation plan.

VI. Recommendations for Additional Research

As illustrated in Figure 1 (pg. 2 of this report), the next step in the ACRP's roadmap calls for using the prototype job analysis approach to collect data on a larger sample of MOS. As part of such an effort, we propose three areas for further research.

- Refine the job analysis descriptors and rating scales
- Evaluate alternative data collection strategies
- Collect data on cross-job descriptors from a larger sample of MOS to enable MOS clustering

As discussed in the remainder of this report, we believe that the prototype job analysis approach used in the field test can be refined to maximize its effectiveness and efficiency. An assessment of its utility for classification can be cost-effectively accomplished through collection of data from a relatively large sample of MOS using descriptor domains that are invariant across MOS.

Any significant variations on the current prototype process (e.g., adding a different type of rating scale or collecting data in workshops versus web-based questionnaires) should be tested before their incorporation into the process. If a revision to the system affects work-oriented descriptor domains, it could be initially evaluated among a subsample of the MOS. Revisions that pertain to worker-oriented descriptor domains that would be part of an MOS clustering data collection should be evaluated using an experimental design.

Refine the Descriptors and Rating Scales

Cross-Job Descriptors

It is likely that some of the worker-oriented domains include descriptors that do not differentiate well among MOS. Identifying and eliminating such descriptors from the job analysis process would improve the overall utility of the overall system for classification. It would not be wise to discard problematic descriptors based on the small sample of MOS used in the present field test, but the removal of descriptors that fail to distinguish among a larger number of MOS should be considered. Discarding such descriptors may not only improve the differential validity of the overall set of descriptors but may also enhance Soldier reactions to the job analysis process by removing statements that are either irrelevant or overly common across a wide range of MOS.

Work Activities

Our initial efforts to develop occupation-specific knowledge and skills descriptors were discontinued because they tended to overlap with work activity descriptors. A more useful approach for incorporating this kind of information would be to combine the two domains in new, useful ways, per one of the earlier recommendations of the ACRP. A similar recommendation could be made with regards to weapons-equipment-tools-technology. Table 33 contains illustrative examples of descriptors that integrate these two domains into work activity descriptors, based on the O*NET's Detailed Work Activities (DWAs) (Dietrich et al., 2002; The National Center for O*NET Development, 2003).

Table 33. Examples of Work Activity Descriptors that Incorporate Knowledge and Tools-Based Descriptors

Domain	Examples
<i>Occupation-Specific Knowledges and Skills</i>	<ul style="list-style-type: none">• Understand detailed electronic design specifications• Understand technical information for electronic repair work• Understand technical operating, service or repair manuals
<i>Weapons-Equipment-Tools-Technology</i>	<ul style="list-style-type: none">• Operate hoist, winch, or hydraulic boom• Set up and operate variety of machine tools• Use electrical or electronic test devices or equipment• Use hand or power tools• Use lifting equipment in vehicle repair setting

Other examples can be found in the lower-order work activity statements developed for the present field test. Taking this approach would make generating the job-specific content (lower-order work activities) needed to support the Army's classification research program easier. Once a standardized series of templates of work activity statements for describing a targeted subset of jobs (e.g., mechanical or electronics repair) has been developed, one could then easily produce job-specific statements by inserting content specific to a job. The kinds of weapons/equipment/tools/technology used or occupation-specific knowledge required of a job typically differentiates jobs at the lower levels of detail to a greater extent than what a Soldier does with those items (e.g., maintaining, trouble-shooting, repairing, operating).

Ratings

It can be argued that the conceptual distinction between ratings of a task's job importance and consequences-for-mission is subtle. In the present research, importance and mission criticality ratings correlated at .97 among supervisors and at .92 among incumbents. Clearly, it is not necessary to collect both sets of ratings. As discussed previously, reducing survey length is desirable and can be achieved by reducing the number of rating scales.

If only the importance rating scale is retained, it could be revised to promote greater differentiation among jobs. For example, supervisors could be asked to rate worker-related descriptors in comparison to other MOS (e.g., How important is this work style/interest/value to the job of first term Soldiers in this MOS relative to other MOS?). We would not advise using such a scale with first-term incumbents, but NCOs would be in a better position to make such judgments.

Further consideration of the difficulty-to-learn scale is also warranted prior to the collection of additional data. Because the scale was developed without input from Army personnel responsible for the design of training programs, it may have questionable relevance for future TRADOC initiatives. Before the scale is used in future research, input should be obtained from TRADOC personnel on issues related to the scale, such as whether focusing on classroom training limits the generalizability of results found from using the scale.

Investigate Alternative Data Collection Strategies

At least for SL1 job analysis information, the field test results suggest that it may not be necessary to collect both incumbent and supervisor data. We suggest using the proposed MOS clustering data collection to confirm (or not) these results. Whether collecting ratings via questionnaires or in workshop settings, if SL1 Soldiers are not required in collecting accurate information, they should be excluded from the process.

Another strategy concerns collecting various types of descriptor information. The workshop method could be implemented in various ways, including a single workshop with a sufficient number and sampling of SMEs to represent variations in the MOS. Alternatively, a series of workshops could be held at multiple locations to get closer to concentrations of SMEs in the MOS. The research would be most informative if multiple strategies could be used for the same MOS so the results would be directly comparable. The comparison could examine quality of information as well as cost and SME/proponent reactions.

Finally, future research may want to assess the extent to which the utility of different methods of data collection depends upon the type of data collected. For example, it could be that data on work-oriented descriptors are most efficiently collected using questionnaires but that worker-oriented data suitable for MOS clustering work is more effectively collected in workshops.

Collect Data on a Larger Sample of MOS and Use to Cluster MOS

In the near-term, collecting job analysis ratings on a larger sample of MOS would potentially serve two purposes. The first purpose would be to cluster MOS in order to select which to target in criterion-related validation research. The second purpose would be to identify or develop end-of-training criteria that sufficiently support the Army's personnel classification research but require fewer resources to construct and administer [e.g., the occupational judgment tests developed by Legree, Psotka, Bludau, and Gray (2009)]. In the long-term, collecting job analytic ratings on a large sample of MOS would allow the Army to evaluate procedures for generalizing or transporting criterion-related validation evidence obtained from a smaller sample of MOS to a larger one. This would be useful for the development or updating of prediction equations to be used in classifying new Soldiers, for example.

For the purposes of meeting the near-term objective of clustering MOS, an expanded sample of MOS would need to be larger than the number of focal MOS to be included in the proposed validation research. The ACRP recommended that the sample of focal MOS for the

criterion-related validation research would comprise 20-30 jobs. Accordingly, job analysis data would need to be collected from an additional 45-55 MOS to ensure that a sample will be large enough to inform clustering or validity generalization analyses. Below is a proposed procedure for collecting data on a large sample of MOS.

Activity 1: Select the MOS to be sampled.

This would first involve an identification of relevant factors upon which to base decisions about the inclusion or exclusion of certain MOS from sampling plans. Such factors would reflect the demands and resources associated with a research project (i.e., scientific or technical, Army policy and personnel management objectives, resource constraints). Once a set of factors had been chosen, MOS would then be rated (or ranked) according to the factors and a final set of 45-55 MOS would be selected. Any information on existing or proposed MOS clusters could be useful in this selection process.

Activity 2: Select the descriptor domains to be measured.

Ideally, ratings would be collected on all the descriptor domains. However, priorities will likely need to be made to minimize the data collection burden placed on Army personnel. Accordingly, we would recommend prioritizing the domains as follows (from most to least important):

- Higher-order (or cross job) work activities
- Work interests
- Work styles and values
- Work abilities

This prioritization is based on the field test results, as well as earlier recommendations of the ACRP, regarding which domains represent the “best bets” for clustering MOS in ways that would maximize their utility for personnel classification research. Collecting ratings on the first three domains would be particularly useful because those data could then be used to develop a preliminary set of rationally-weighted composites for classifying new Soldiers to MOS, based on scores from new and emerging predictor measures, such as the Work Preferences Assessment (WPA) or the Tailored Adaptive Personality Assessment System (TAPAS). A preliminary set of cross job work activity descriptors, customized to the Army, were developed for this project and for the O*NET evaluation. An expanded version of these cross job descriptors was recently used in a content validation of the ASVAB (see Waters et al., 2009 and Appendix F).

Lower-order work activities are excluded from the list of descriptors for two reasons. First, the time and financial resources required to generate lower-order work activities for 45-55 MOS could be tremendous. Second, collecting data on those descriptors is not essential for the near-term purpose of clustering MOS or for developing (or identifying) end-of-training criteria, based on higher-order information about the MOS sampled. Once the clusters have been developed and the 20-30 priority MOS identified for criterion-related validation research, lower-order work activities could then be formulated for those targeted MOS.

Activity 3: Select the data collection method and from whom data are to be collected.

As addressed in the preceding section, no single data collection method is likely to prove “best” for collecting ratings on the selected domains. However, given the number of MOS to be sampled, a questionnaire-based approach is likely to be the most cost affordable, while at the same time likely to yield sufficiently reliable and valid ratings. This is particularly true since the questionnaires for the recommended domains have already been developed and programmed for web-based administration using the Army’s InterForm platform. There are multiple strategies for enhancing the potential of the existing questionnaires to differentiate across MOS that would not require extensive resources from the Army to implement (e.g., using ratings from multiple domains to cluster MOS, using data for a larger sample of MOS to eliminate items not useful for discriminating across MOS, having participants select the top five most important and least important attributes).

Another practical advantage to administering web-based questionnaires is that the questionnaires could be easily administered to both supervisors and incumbents for the same administrative cost(s). Unless collecting data from incumbents for the MOS sampled interferes with other Army data collection priorities or identifying incumbents to participate requires significant resources, it makes sense then to administer the questionnaires to raters from both groups. Doing so would enable the Army to more comprehensively examine the practical implications of collecting ratings from the two groups (e.g., by comparing what differences, if any, exist between the clustering solutions obtained from supervisor and incumbent ratings).

Activity 4: Prepare and administer the data collection materials. Modify the database.

The next activity would involve finalizing the questionnaires for web-based administration and modifying the existing database, as needed. Based on the preceding discussion, any changes to the questionnaires would generally be minimal and would not require generating job-specific content (e.g., adding an additional exercise to identify the top five most and least important descriptors within each domain). The results of the field test indicate that 20-25 participants per questionnaire, on average, would yield sufficiently reliable ratings to construct group means for clustering the MOS. Assuming a 5% response rate, surveys should be sent to about 500 Soldiers (supervisors and incumbents) per MOS.

Activity 5: Analyze the ratings and cluster the MOS.

The primary, near-term objective of this activity is to derive clusters to facilitate the selection of target MOS for criterion-related validation research. In general, clustering the MOS would involve two steps. The first step consists of clustering the MOS on the basis of the ratings for each of the targeted domains, separately. The resulting clusters could be further refined (a) empirically (i.e., from component analyses of applicable descriptors within each domain) or (b) rationally on the basis of which descriptors carry the greatest potential for classification gains (e.g., specific interests first, work styles second, and then values). The second step would be to perform a series of two-stage cluster analyses, where MOS are clustered first on the basis of the higher-order work activities and then on each worker-oriented domain, separately. The resulting two-stage cluster solutions could then be compared empirically to determine which carries the

greatest potential for enhancing the Army's existing classification system, thereby forming the basis on which MOS will be sampled for future criterion-related validation research.

Conclusion

Developing and implementing a new Army-wide job analysis system that collects critical information without being unwieldy to maintain is a daunting but necessary task. Implementing such a system, however, will enable the Army to accomplish its near- and long-term classification research objectives. A system exhibiting the following features is most likely to meet these objectives:

- A common language, customized to the Army context, for describing similarities and differences in MOS. This common language should consist of a reasonably comprehensive set of descriptors representing targeted work (i.e., work activities, work or job context, machine-tools-equipment-technology) and worker-oriented (i.e., knowledge, skills, abilities, work values, interests) domains. These descriptors must be sufficient for describing any MOS.
- Cross-MOS descriptors for use in identifying similarities and differences across MOS.
- Descriptors, in particular work activities (i.e., what Soldiers do on a job), at multiple levels of generality that can be organized hierarchically to support the Army's needs for job information at multiple levels of aggregation.
- The flexibility to combine descriptors or data on descriptors from multiple, traditionally independent domains, and in new or innovative ways that enable the identification of similarities and differences in Army jobs.
- A reasonable cost to implement the system.
- Sufficient flexibility so that the descriptors can be refined and updated, as needed. The system needs to include a mechanism for adding new descriptors, or modifying existing descriptors, as job information on a larger sample of MOS is collected or MOS requirements change over time.
- A foundation based on descriptor taxonomies, developed or refined using a combined top-down and bottom-up approach, as recommended by the ACRP.
- A relational database that collects, organizes, and stores job analysis data systematically over time and that facilitates the integration of these data with other relevant personnel data (e.g., criterion-related validity estimates).

The prototype job analysis system developed and field tested in this effort was designed with these features in mind. The results of the field test demonstrate that the prototype system has the potential to reliably and validly describe entry-level jobs using a questionnaire-based approach that is reasonably cost-effective to implement and administer Army-wide. Further, many of the recommend follow-on steps are intended to take advantage of available resources (e.g., O*NET) while incorporating lessons learned during the prototype field test and experience with the Army's current system. In the end, it is important to recognize that there is arguably a finite number of ways in which jobs can be described. A new system may not seem to be dramatically different from existing ones on the surface. Nevertheless, it may produce different and more useful results in practice. Modifying the prototype system field tested here, along with paying additional attention to process-related issues (e.g., how data are collected) and

coordinating efforts with existing Army systems and associated stakeholders (particularly TRADOC) has appreciable potential to accomplish the goals set forth by ARI and articulated in a roadmap formulated by the advisory panel it established (Campbell et al., 2007).

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Appendix A

Recommendations and Specifications for Formulating Army Job Descriptors and Metrics

Work Activities, to include Weapons-Equipment-Tools

Definitions

Work activities are behaviorally based descriptions of what a Soldier (or Officer) in an occupation/job does (i.e., the activities s/he performs), and is held accountable to perform, over some span of time that contributes to, and creates, value to the Army. Generally speaking, there are three major categories, or types, of work activities

Occupation/Job-Specific Technical Activities reflect work activities that constitute the core technical requirements of an occupation/job and that differentiate an Army occupation/job, or cluster of occupations/jobs, from others (e.g., performing operator maintenance checks and services; repairing mechanical systems; installing and assembling electronic components; installing wire and cables; driving a light wheeled vehicle).

Non-Occupation/Job-Specific (i.e., Army-Wide) Technical Activities reflect work activities constituting the core technical requirements that are not unique to an occupation/job but are required by most or all jobs in the Army (e.g., performing basic first aid; navigating in the field; aiming and firing a weapon; maintaining a weapon).

Non-Technical Activities reflect work activities that are non-technical, and typically intra- and inter-personal, in nature (e.g., exhibiting self-management, exhibiting self-directed learning, relating to and supporting peers, demonstrating peer leadership, demonstrating teamwork). These requirements could be specific to an occupation/job, or cluster of occupations/jobs. Alternatively, they could be required of most or all Army jobs (i.e., Army-wide).

Each of these categories of work activities could be defined at multiple levels of generality, which can be arranged hierarchically within each category according to well-defined rules to be established as part of Phase 1 of this pilot project. At a minimum, we plan on formulating work activities at two levels of generality, as outlined below⁷

Major Duties (MDs) represent the highest-order work activities and are cross-job in nature. They describe a definable and nontrivial duty, or responsibility, for which a Soldier (or Officer) is accountable to perform, which has stakeholders to whom the results (i.e., outputs) are important and meaningful, and which entails work of significant complexity and duration. More specifically, MDs describe what a Soldier (or Officer) does, and, as appropriate, to what or for whom it is done. MDs duties are typically cross-job in nature (i.e., these requirements are relevant across multiple, and in some cases, all, Army jobs). They are behaviorally based and represent an aggregation of multiple, related lower-order work activities, as defined below.

⁷ Although we will be formulating work activities at, at least, two levels of generality, we will be capturing information at three levels. Task statements and other existing information on occupation/job-specific work activities (e.g., from Soldier Manuals) that served as source materials for formulating MDs and KWAs will constitute the lowest level of description.

The following are examples of MDs

- ✓ “Repair mechanical systems.” (Occupation-Specific Technical)
- ✓ “Install electronic components.” (Occupation-Specific Technical)
- ✓ “Pack and load materials.” (Occupation-Specific Technical)
- ✓ “Send and receive radio signals.” (Occupation-Specific Technical)
- ✓ “Drive wheeled vehicles.” (Occupation-Specific Technical)
- ✓ “Write and deliver presentations.” (Occupation-Specific Technical)
- ✓ “Engage in hand-to-hand combat.” (Army-Wide Technical)
- ✓ “Navigate in the field.” (Army-Wide Technical)
- ✓ “Survive in the field.” (Army-Wide Technical)
- ✓ “Lead a team.” (Army-Wide Non-Technical)
- ✓ “Support and advise peers.” (Army-Wide Non-Technical)

Key Work Activities (KWAs) represent lower-order work activities. They are statements (or categories) of moderate specificity that describe a series or clustering of related behaviors a Soldier (or Officer) performs to achieve a specific work objective. More specifically, KWAs describe what a Soldier (or Officer) does, to what or for whom it is done, and potentially for what purpose it is done. KWAs are occupation or job-specific, to some degree, although it is possible that two or more occupations/jobs may share the same KWA. These activities typically reflect technical work activities, but could encompass non-technical ones as well. At their lowest-level, KWAs represent an aggregation of two or more related tasks, as currently found in the Army (e.g., Soldier Manuals).

The following are examples of KWAs

- ✓ “Select and prepare firing positions for individual weapon.”
- ✓ “Construct field expedient firing aids for individual weapon.”
- ✓ “Load, unload, and correct malfunctions for individual weapon.”
- ✓ “Aim, track, and fire individual weapon at targets.”

As evident from these definitions, these two levels of work activities are conceptually similar (i.e., both reflect work-related behaviors) so that statements reflecting the same underlying activity across levels can be linked. Thus, both MDs and KWAs are expected to follow a similar format and structure, as summarized in the proceeding sections. The chief difference between the two is one of breadth or scope. Specifically, whereas MDs are broader (i.e., higher-order) and are expected to be applicable across a relatively wide range of Army occupations/jobs, KWAs are more specific and often applicable only to a subset of Army occupations/jobs requiring a similar activity.

Objectives and Purposes to be Served

The purposes for which these prototype job descriptors are intended to serve were previously outlined (pp. 2-3; 10-12). More specifically, MDs are primarily intended to provide a common basis, or set of cross-job descriptors, on which all Army jobs could be scaled/rated for the purposes of clustering jobs (i.e., to guide the sampling of Army jobs for criterion-related validation studies; to generalize, or transport, criterion-related validity estimates and predicted performance equations across jobs; to identify potential candidates for “mid-range” criterion measures). MDs could also be used to elicit information from Army SMEs on lower-order work activities, in particular non-technical requirements, in situations where existing information on these requirements does not exist or is otherwise incomplete. KWA categories and statements, and the “optimal” level(s) at which each is to be specified, are intended to provide information for use in clustering Army jobs (i.e., to determine the limits and understand the implications of generalizing, or transporting, criterion-related validity estimates and predicted performance equations across jobs), as well as information, and possibly content, for developing and/or refining performance-related criterion measures (i.e., ratings, knowledge tests).

Recommended Structure and Format for Major Duties (MDs)

MDs represent statements describing a definable and nontrivial duty, or responsibility, for which a Soldier (or Officer) is accountable to perform, which has stakeholders to whom the results (i.e., outputs) are important and meaningful, and which entails work of significant complexity and duration. The following are recommendations for the format and structure of MDs and are intended to serve as a guide when generating MD statements.

- *The total set of MDs developed should be sufficiently comprehensive.* That is, it should include all of the important duties, technical and non-technical, and not simply constitute a sampling of representative duties required of Soldiers (or Officers).
- *Statements should describe MDs, and not worker-related characteristics.* MD statements should describe a set, or cluster, or related work activities Soldiers are responsible for performing. They should not describe occupation-specific knowledges and skills, personal qualities, or other worker-oriented characteristics. The inclusion of these requirements in MDs should be avoided.

√	Install electronic components
√	Troubleshoot mechanical systems
√	Repair individual weapons
√	Lead a team
X	Knowledge of mechanical principles
X	Understands weapon operating, service or repair manuals

- *Statements should reflect important duties or responsibilities that are as objective, observable, and as fully specified as possible.* That is, statements should lend themselves to measurement, either on an order-of-magnitude (quantitative) basis, or in terms of clearly observable and understandable criteria by which the presence or absence of the described duty or responsibility can be reliably assessed or evaluated. Doing this is important both for purposes of collecting job analysis data on these descriptors, as well as developing criterion measures.
- *Statements should be at the appropriate level of generality.* MDs should not be so general as to be nearly universally applicable (e.g., “Makes Decisions,” “Inputs information,” “Identifies objects, actions, and events,” “Repairs equipment”). Alternatively, MDs statements should not be as specific as KWAs, as defined here. MDs should be sufficiently general that they can be applied across Army jobs for the purposes of describing similarities and differences in these jobs using a common metric.

√	Repair electrical systems
X	Correct malfunctions of alternator
X	Correct malfunction of batteries
X	Replace protective control box

- *Statements should convey a complete and well-defined MD, making clear what is done, and, as appropriate, to what or for whom it is done.* A MD statement should include both a verb (specifying the action, e.g., “Repair”) and an object (a noun specifying who or what is acted upon, e.g., “weapons”, “electronic systems”, “mechanical systems”). Avoid multiple verbs that imply, or reflect, more than one type of duty and, potentially, differing work activities. Similarly, avoid verbs that are general or have multiple meanings (e.g., Does “operate weapon” mean “fire weapon” or “clean” or “load”?).
- *Verbs conveying a concrete, specifiable duty are preferable to more abstract or complex verbs, which often leave the nature of the duty unclear or ambiguous.* For example, “explain” is better than “consult”; “check,” “inspect,” or “review” are better than “ensure that”; other verbs that are often problematic in this way are “coordinate” and “determine,” which are usually unclear as to the nature of the duty.
- *Use standardized wording structure and consistent terminology as far as possible across the sets of MDs.* MD statements should follow the same wording structure, as outlined in the two preceding bullets. When referencing the same object use the same term consistently across statements. For example, if a weapon maintained and operated by an individual Soldier (or Officer) is referred to as an “individual weapon”, that term should be used consistently. Avoid using alternative wording or terms (e.g., “assigned weapon” or “personal weapon”) for the same object unless truly referencing a new and different object.

- *Statements should be as simple and concise as possible, without sacrificing meaning, and not make use of occupation-specific jargon and acronyms.* Compound and complex (hyphenated, slashed) word constructions (e.g., "Develop alternative/modified strategic/tactical plans...") should be avoided. If the hyphen or slash means "or," it is better to write "or"; if it means "and," two statements may be warranted. Although MD statements should be Army-specific, the language used should be "user-friendly" (i.e., free of jargon or complex terminology specific to that job or occupation). That is, statements should be simple but sufficiently descriptive of the duty performed so that an individual without specific training and/or tenure in the Army can understand what is done, and, as appropriate, to what or for whom it is done.
- *Statements should be descriptive rather than evaluative.* For example, "Maintains a motor vehicle" is appropriate. "Maintains a motor vehicle in a manner that minimizes unneeded repairs and maintenance," is not.

√	Maintains a motor vehicle
X	Maintains a motor vehicle in a manner that minimizes unneeded repairs and maintenance

- *Statements should avoid the use of examples (e.g., xxx) to clarify the boundaries of similar, and potentially related, duties.* The use of examples for purposes of delineating differences across similar, and potentially related, duties should be avoided. As much as feasible, differences across MDs should be reflected in the statements themselves.

X	Repair electrical systems (e.g., instrument panels, vehicle starter systems, batteries)
X	Repair mechanical systems (e.g., engines, transmissions, vehicle brake systems)

Proposed Steps and Procedure for Generating Major Duties (MDs)

The following are the proposed steps and procedure for generating MDs. At the end of this process there should be a set of 50-100 MD statements (roughly), reflecting both technical and non-technical work activities, for use in workshops with proponent SMEs to formulate and calibrate a hierarchical work activities taxonomy linking these higher-order requirements to KWAs, as well as the rules for doing so. The generation of MDs will take place at the same time as the initial drafting of KWAs, as described in the proceeding sections.

Activity 1. Starting with a pool of candidate performance descriptors customized to Army, the Descriptor Development Team generates a preliminary taxonomy (or first draft) of MDs by reformatting and editing these descriptors in line with the proposed guidelines and specifications, as outlined in this document. Completing this activity involves the following steps

Step 1.1: Review candidate performance descriptors and existing military performance taxonomies. Candidates to start from include

- Army-wide performance dimensions and occupation/job-specific performance categories from the Army21 projects (PerformM21, NCO21, Select21, Army Class).
- Task categories and job activities from the Army Task Questionnaire and Job Activity Questionnaire, respectively, from Project SYNVAL.
- Performance dimensions from existing military performance models developed for the Army and the other Services (e.g., from Project A).
- Task categories from relevant Army manuals and documents, in particular those focused on Army-wide technical and non-technical duties (e.g., Enlisted Soldier and Officer Common Task Lists; Leadership Manual).⁸

Step 1.2: Create an Excel Workbook to document the MD development process. Creation of the Workbook involves importing candidates (from Step 1.1) determined to be most useful and coding the selected performance descriptors so that the MDs generated can be tracked/linked back to the relevant source material. A useful strategy for narrowing down, or otherwise refining, the initial list of candidate performance descriptors is to crosswalk each set of descriptors against each other, eliminating redundancies as needed.

Step 1.3: Divide the work so that each member of the Descriptor Development Team focuses on and is responsible for one of the three major categories, or types, of work activities (i.e., Occupation-Specific Technical; Non-Occupation Specific or Army-Wide Technical, Non-Technical).

Step 1.4: Generate a first draft of MDs, reformatting and revising the candidate performance descriptors in line with the proposed guidelines and specifications, as outlined here, to ensure consistency in breadth, scope, and level of generality. As part of this step, the Descriptor Development Team should make an effort to identify Army-wide technical and non-technical MDs potentially missing from the candidate performance descriptors and/or those requiring refinement. To do this, first reformat and revise the candidate performance descriptors already identified. Next, cross-walk this preliminary set of MDs for these targeted domains against (a) non-military, civilian work-related activities or performance taxonomies (e.g., Cunningham's Occupational Analysis Inventory [OAI], O*NET Generalized Work Activities [GWAs] and Detailed Work Activities [DWAs]) and (b) existing taxonomies relevant to one or more targeted performance dimensions (specifically, organizational/peer support, teamwork, and leadership) from the I-O literature. Based on this crosswalk, add MDs to the preliminary taxonomy and/or revise existing ones, as needed.

Step 1.5: Prepare the MD Workbook, ensuring that the MDs and documentation on all source materials, and so on, are included. When finished, post the Workbook to the designated folder on the S-drive.

Activity 2. A Descriptor Review Team reviews preliminary taxonomy of MDs to ensure

⁸ The task statements from these manuals are likely to be useful for refining the task categories.

consistency with proposed guidelines and specifications and that the taxonomy provides sufficiently comprehensive coverage of the performance space. Descriptor Development Team implements recommended edits, as needed.

Activity 3. Using the preliminary taxonomy of MDs, conduct a sorting exercise with the Descriptor Development Team comparable to that proposed for the SME workshops first outlined in the ACRP report (pp. 38-39). The purpose of this sorting exercise is twofold: (a) to identify additional refinements to the pool of Army-wide and non-technical MDs and (b) to identify and recommend potential candidates for elimination so that the pool of MDs can be reduced to about 50-100, if needed. In brief, the sorting exercise would consist of the following. First, sort the MD statements for the targeted domains into the O*NET GWAs and DWAs. Next, sort within the MD statements, maximizing the homogeneity of content within categories and minimizing overlap between categories. Finally, sort the drafted KWA categories (from 2-3 MOS) into MD statements. A senior Descriptor Review Team member would facilitate this sorting exercise.

Activity 4. The Expert Advisory Panel, high-level Army SMEs (e.g., members of ARI's Army Testing Program Advisory Team [ATPAT]), and/or Army job analysts review the proposed pool of MDs and select metrics (i.e., scales). The purpose of this review is threefold: (a) to identify and recommend modifications and edits to the proposed pool of MDs, (b) to identify and recommend potential candidates for elimination, in particular any occupation-specific technical duties that are no longer relevant to Army, and (c) to identify and recommend possible additions to the pool of occupation-specific technical duties based on the Army's existing occupational structure. At a minimum, the metrics would include scales assessing the frequency and importance of the MD to an occupation/job (e.g., the existing O*NET frequency and importance scales used when rating GWAs). The Descriptor Development Team implements edits, as needed.

Activity 5. Conduct workshops with Army SMEs. The purpose of these workshops is to collect feedback and preliminary data on MDs from Army SMEs.

Recommended Structure and Format for Key Work Activities (KWAs)

As discussed, KWAs are categories and statements describing a series or cluster of related behaviors a Soldier (or Officer) performs to achieve a specific work objective. The following are recommendations for the format and structure of KWAs and are intended to serve as a guide when generating KWAs.

- *The total set of KWAs developed should be sufficiently comprehensive.* That is, the set should include all of the important KWAs, technical and non-technical, and not simply constitute a sampling of representative KWAs required of Soldiers (or Officers).

- *Statements should describe KWAs and not worker-oriented characteristics.* KWAs should describe the work-related behaviors Soldiers (or Officers) must perform. KWAs should not describe occupation-specific knowledges and skills, personal qualities, or other worker-oriented characteristics. The inclusion of these requirements in KWAs should be avoided. For example, the Army’s *Soldier’s Manual of Common Tasks* (STP 21-1-SMCT) (Department of the Army, 2006) includes the task: “Comply with the Law of War and the Geneva and Hague Conventions.” In part, “Law of War and the Geneva and Hague Conventions” reflects an Army-wide knowledge required for the successful performance of multiple tasks (e.g., treatment of prisoners, etc.). When generating KWAs, a separate listing of non-work activities should be made for future use in formulating relevant worker-oriented characteristics.
- *Statements should reflect important KWAs that are as objective, observable, and as fully specified as possible.* That is, statements should lend themselves to measurement, either on an order-of-magnitude (quantitative) basis, or in terms of clearly observable and understandable criteria by which the presence or absence of the described KWA can be reliably assessed or evaluated. Doing this is important both for purposes of collecting job analysis data on these descriptors, as well as developing criterion measures.
- *Use behavioral homogeneity as a guide when generating KWAs to ensure that statements are at an appropriate level of generality (or specificity).* KWAs should be slightly broader and more general than specific task statements, as currently found in the Army (e.g., Soldier Manuals, Officer Foundation Standards). A KWA should be written to encompass tasks or behaviors that collectively represent essentially the same activity, even though the type of equipment involved or the specific knowledge required could (and do) vary. That is, a KWA statement should represent a set, or cluster, of related behaviors reflecting the same underlying work activities. In the example below, the last statement includes too many heterogeneous behaviors, each reflecting different work activities. Specifically, “engage targets” refers to aiming and firing the weapon – an activity that typically takes place *on* the battlefield in support of offensive and/or defensive operations. “Maintaining a weapon (e.g., M-9 pistol)” involves disassembling/assembling, cleaning, and lubricating parts – an activity that takes place *off* the battlefield.

√	Maintain individual weapon
√	Aim, track, and fire individual weapon at target
√	Load, unload and correct malfunctions in individual weapon
X	Load, unload, engage targets, reduce stoppages, and maintain an M9 pistol

Statements should avoid reference to specific weapons-equipment-tools (WETs). Those experienced with Army task statements know that the Soldier Manuals and training are not written in a manner that generalizes across specific pieces of equipment. Instead, there are typically separate tasks in the Soldier’s Manual representing every possible combination of activities (e.g., Load/unload) and specific WETs (e.g., M9 pistol, M16 Series Rifle). Our experience is that Army Subject Matter Experts (SMEs) sometimes react negatively to work activity statements that are devoid of WETs. To address this, KWAs should be written without making reference to specific WETs unless the specific WET is so integral to the

work activity that it must remain in the KWA (e.g., reading a map). If that is not the case and there are multiple task statements all sharing essentially the same underlying work activity but each time referencing a different specific WET (e.g., different guns or weapons), make a separate list of specific WET(s) so that they can be cross referenced with the relevant KWAs later on. An example of this cross referencing appears on the next page (see Table 4). Eventually, the X's in the table might be replaced with SME judgments about the frequency of the KWA by WET combination. In the KWA statement itself the specific WET should be referenced according to a WET categorization scheme to be defined (e.g., M9 pistol might be referenced as a "gun"; an M1-Abrams Tank as a "track vehicle").

- *Statements should describe a complete and well-defined activity, making clear what is done, and, as appropriate, to what or for whom it is done.* Each KWA statement should start with a clear action verb followed by a description of an object (a noun) specifying what or who is acted upon (e.g., write short memos, fire individual weapon, inspect electrical system). Consistent with an earlier recommendation, avoid multiple verbs that imply, or reflect, more than one type of activity and, potentially, differing work activities. Similarly, avoid verbs that are general or have multiple meanings (e.g., Does "operate weapon" mean "fire weapon" or "clean" or "load"?). Verbs conveying a concrete, definable activity are preferable to more abstract or complex verbs, which often leave the nature of the activity unclear or ambiguous. For example, "explain" is better than "consult"; "check," "inspect," or "review" are better than "ensure that"; other verbs that are often problematic in this way are "coordinate" and "determine," which are usually unclear as to the nature of the activity.
- *Statements should use context (e.g., a clause specifying purpose, such as "to identify business problems and communications needs") to clarify the behavior(s) when complex or vague verbs are unavoidable.* For example, "Analyzes information on the situation to determine necessary changes in combat plans" is better than "Analyzes situational information." That is, statements should not only make clear what is done, and, as appropriate, to what or for whom it is done, but for what purpose it is done as needed.

Table 4. Example of Recommended Approaching for Handling Weapons-Equipment-Tools (WETs)

[illegible]

- *Use standardized wording structure and consistent terminology.* KWA statements should follow the same wording structure, as outlined in the two preceding bullets. When referencing the same object use the same term consistently throughout. For example, if a weapon maintained and operated by an individual Soldier (or Officer) is referred to as an “individual weapon”, that term should be used consistently. Avoid using alternative wording or terms (e.g., “assigned weapon” or “personal weapon”) for the same object unless truly referencing a new and different object.
- *Statements should be as simple and concise as possible, without sacrificing meaning, and should not make use of occupation-specific jargon and acronyms.* When writing KWA statements, compound and complex (hyphenated, slashed) word constructions (e.g., “Develop alternative/modified strategic/tactical plans...”) should be avoided. If the hyphen or slash means “or,” it is better to write “or”; if it means “and,” two statements may be warranted. Although the activity described in the KWA statements should be Army-specific, the language used should be “user-friendly” (i.e., free of jargon or complex terminology specific to that job or occupation). That is, statements should be simple but sufficiently descriptive of the activity performed such that an individual without specific training and/or tenure in the job or occupation can understand the requirement. For example, in the Soldier Common Task manual there is a task titled “Perform voice communications.” If one reads the task description, the actual activity consists of sending a short radio message.

√	Send a short radio message
X	Perform voice communications

- *Statements should be descriptive rather than evaluative.* KWAs should be descriptive, not prescriptive or evaluative. For example, “Troubleshoot and correct malfunctions in fuel system” is appropriate. “Troubleshoot and correct malfunctions in fuel system in a manner that minimizes unneeded repairs and maintenance,” is not.

√	Troubleshoot and correct malfunctions in fuel system
X	Troubleshoot and correct malfunctions in fuel system in a manner that minimizes unneeded repairs and maintenance

- *Statements should avoid the use of examples (e.g., xxx) to clarify the boundaries of similar activities.* During the drafting of KWAs, the use of examples for purposes of delineating the differences across similar activities should be avoided. SMEs tend to pay a lot of attention to the “e.g.,s.”, shifting their focus away from the KWA. As much as feasible, differences across KWAs should be reflected in the statements themselves.

√	Perform basic first aid
X	Perform basic first aid (e.g., CPR, shock prevention, clear throat of casualty)
X	Perform first aid for injuries to extremities or limbs (e.g., put on field dressing, tourniquet, splint)

Proposed Steps and Procedure for Generating KWAs

The following are the proposed steps and procedure for generating KWAs. At the end of this process there should be a set of KWA statements for 4-6 MOS, reflecting both technical and non-technical work activities, for use in workshops with proponent SMEs to formulate and calibrate a hierarchical work activities taxonomy linking these lower-order requirements to MDs, as well as the rules for doing so. The generation of KWAs (for an initial 2-3 MOS) will take place at the same time as the initial drafting of MDs, as described in the preceding sections.

Activity 1. The Descriptor Development Team drafts KWA statements for each of the selected MOS in line with the recommended guidelines and specifications. Completing this activity for each MOS involves the following steps

Step 1.1: Review available information on the MOS. Candidates to start from include

- The performance categories and lower-order work activities from the Army21 projects (PerformM21, Select21, Army Class).
- Existing task categories and task statements for the selected MOS from relevant Army manuals and publications, in particular the most recent Soldier Manual and Trainer's Guide (STPs) for Enlisted and Officer Foundation Standards (OFS) for Officers.
- Existing lists of task statements for the selected MOS used in a recent job analysis survey by the ARI's Occupational Analysis (OA) Program.

Information on candidate descriptors can be found on HumRRO's S-drive at:

S:\Project\Army ONET\First Cycle Descriptor Development\Resources and Tools

Step 1.2: Create an Excel Workbook to document the KWA development process for that MOS. Creation of the Workbook involves importing existing information from Step 1.1 (e.g., task statements from the STP) and then coding the selected descriptors so that the KWAs generated can be tracked/linked back to the relevant source material.

Step 1.3: Once this information has been imported and properly coded, create a spreadsheet within the Workbook for use in drafting KWAs. Label the spreadsheet, "KWAs."

Step 1.4: Sort tasks and other source material into preliminary categories. These initial categories (or first cut) should be fairly broad and are intended to help facilitate the creation and labeling of KWA categories (next step).

Step 1.5: Starting with the preliminary categories from Step 1.3, generate and label KWA categories, using behavioral homogeneity as a guide. This is expected to be an iterative process, requiring multiple iterations of sorting and resorting, each time making progressively finer distinctions and refinements to categories previously generated.

Step 1.6: For each KWA category (from Step 1.5), generate KWA statements that encompass two or more tasks sharing the same underlying work activity, following the guidelines and specifications as outlined in this Blueprint.

Step 1.7: During this process, create a separate listing of specific WETs. This will involve first determining whether the specific WET is (a) so integral to the work activity that it must remain in the KWA OR (b) should be extracted or summarized at a broader level because there are multiple requirements (e.g., task statements) all sharing essentially the same underlying work activity, but each time referencing a different specific WET (e.g., different guns or weapons). If (a), retain the KWA “as is.” If (b), list the specific WETs on a separate spreadsheet within the KWA Workbook labeled “WETs.” To facilitate the organization of the WETs, refer to the higher-order WET categories from the Master WETs Workbook, sorting the specific WET into the category that best describes it. Should it be needed, feel free to create new subcategories that describe related WETs at a lower level of detail than the higher-order categories in the Master WETs Workbook. Use this newly created subcategory or the higher-level category in the KWA statement.

Step 1.8: Identify and generate non-technical KWA statements potentially missing from the preliminary KWA taxonomy using relevant source materials containing information on non-technical work activities (e.g., Mission Training Plans [ARTEPS]). As before, import source materials determined to be useful into the Workbook, placing them in a separate spreadsheet. When reviewing the source materials, think about the non-technical requirements that are either (a) implied or (b) specifically stated in these materials. Should it be helpful, or should no existing source materials specific to the selected MOS be available, review and use the O*NET Work Context Questionnaire as a stimulus. Be sure to also review the existing KWAs and technical task statements (from Task 1.7), as possible non-technical requirements could be implied in one or more of these statements.

Step 1.9: With the non-technical KWA statements (from Step 1.8), create non-technical KWA categories, again using behavioral homogeneity as a guide. Note this process is the opposite of the process for generating technical KWAs, and that is by design.

Step 1.10: As with the WETs, when generating KWA statements, make note of requirements that are really occupation-specific KSs, and *not* work activities. Maintain a list of these on a separate spreadsheet. This information could be useful for generating occupation-specific KSs. Do *not* incorporate KSs into a KWA.

Step 1.11: Review the Workbook, making sure that everything is properly coded and labeled. In particular, the final taxonomy of KWA categories and statements should each have a code associated with it. For KWA categories, the code should be as follows

MOS, C (for “category”), a hyphen, then a two digit identifier, e.g.,

11BC-01
11BC-02
11BC-03...

For KWA statements, the code should be as follows
MOS, a hyphen, the 2 digit KWA category code (from above), a hyphen, then a three digit identifier, e.g.,

11B-01-001

11B-01-002

11B-01-003

When finished, post the Workbook containing the KWAs, documentation on all source materials, and so on, to the designated folder on the S-drive.

Activity 2. A Descriptor Review Team reviews the draft KWA statements to ensure consistency with proposed guidelines and specifications and that the statements provide sufficient and reasonably comprehensive coverage of the performance space. Descriptor Development Team implements recommended edits, as needed.

Activity 3. Conduct a sorting exercise comparable to that proposed for the SME workshops first outlined in the ACRP report (pp. 38-39) with the Descriptor Development Team using the draft KWA statements for each MOS. The purpose of this sorting exercise is twofold: (a) to identify and recommend possible modifications and refinements to the draft KWA statements for the selected MOS and (b) to generate a preliminary sorting, or multiple sortings reflecting differing levels of generality (or aggregation), of KWAs for Army SMEs to react to in the planned workshops. In brief, this sorting exercise will involve the following. First, sort the KWA statements into the preliminary taxonomy of MDs previously developed. Next, sort within the KWA statements, placing statements into categories that maximize homogeneity within a category and minimize overlap across categories. A senior member of the Descriptor Review Team will facilitate the sorting exercise.

*Activity 4. The Expert Advisory Panel, Army SMEs for that job (if available), and/or Army job analysts review the proposed pool of KWA statements, WETs, and select metric(s). The purpose of this review is threefold: (a) to identify and recommend modifications and edits to the draft KWA statements; (b) to identify and recommend potential candidates for elimination, if needed; and (c) to select metric(s) against which jobs can be rated on the draft KWA statements. At a minimum, the metrics would include scales assessing the frequency and importance of each KWA to an MOS (e.g., the existing O*NET frequency and importance scales used when rating GWAs). The Descriptor Development Team implements recommended edits, as needed.*

Activity 5. Conduct workshops with Army SMEs from the targeted jobs. The purpose of these workshops is to collect feedback and preliminary data on the KWAs from Army SMEs.

Recommendations and Specifications on Work Activity Metrics

Accompanying the work activity descriptors are metrics (i.e., scales) by which Army occupations/jobs could be assessed on these same descriptors. At a minimum, these metrics should include generic, Likert-type scales measuring (a) the frequency with which a MD or

KWA is performed on the occupation/job and (b) the importance of the MD or KWA to the performance of the occupation/job. In particular, using the same, existing O*NET and Army job analysis scales, if available, of these dimensions (e.g., for the O*NET GWAs) would enable and facilitate comparisons between the prototype job descriptors and existing alternatives.

Occupation-Specific Knowledges and Skills (KSs)

Definitions

Occupation-specific knowledges and skills (KSs) are descriptions of the developed knowledges and skills a Soldier (or Officer) needs to perform the core duties and work activities, technical and non-technical, required of an Army occupation or job, or cluster of occupations or jobs. In contrast to aptitudes, abilities, and other worker characteristics, occupation-specific KSs are acquired through some combination of education, training (on and off the job), and experience (i.e., they are trainable, to some degree). As implied by their definition, occupation-specific KSs are more occupation-specific than basic workplace and cross-functional KSs (e.g., basic math facility, critical thinking, oral and nonverbal comprehension, problem-solving, reading comprehension, social perceptiveness, written communication) which are required to at least some degree in a wide range of, if not virtually all, occupations/jobs.

As with work activities, occupation-specific KSs could be defined at multiple levels of generality, arranged hierarchically according to well-defined rules. At a minimum, these requirements could be defined at, at least, two levels of generality, as outlined below

Content Knowledges (CKs) represent labels and statements that describe a discrete and integrated body of declarative knowledge (e.g., subject area, discipline, trade, science) a Soldier (or Officer) must know to perform the core duties and work activities required of an Army occupation/job, or cluster of occupations/jobs. CKs facilitate the learning and acquisition of more specialized, and more process-oriented (i.e., procedural), knowledges and skills. Thus, CKs provide the basis for process-oriented KSs, as defined here (i.e., process-oriented KSs could be nested in, at some level, CKs). CKs are not intended to represent prerequisite knowledges that Soldiers must possess at the start of their technical training (e.g., AIT, OSUT). Rather, CKs represent knowledges that Soldiers develop and acquire *as part of their technical training*. CKs are typically technical in nature, but they could encompass non-technical (i.e., intra- and inter-personal) requirements as well. CKs could be defined at multiple levels of generality, independent of PKSs.

The following are examples of CKs

- ✓ Computers and Electronics: Knowledge of electric circuit boards, processors, chips, and computer hardware and software.
- ✓ Geography: Knowledge of various methods for describing the location and distribution of land, sea, and air masses, including their physical locations, relationships, and characteristics.
- ✓ Medicine and Dentistry: Knowledge of the information and techniques needed to diagnose and treat injuries, diseases, and deformities.

Process-Oriented (Procedural) Knowledges and Skills (PKSs) represent statements that describe the knowledges and skills of the processes, operations, and procedures needed to perform the core duties and key work activities required of an Army occupation/job, or cluster of occupations/jobs. That is, PKSs describe a Soldier's (or Officer's) knowledge of *what to do* and *how to do it*. PKSs facilitate the performance of the core duties and key work activities a Soldier (or Officer) must perform in their occupation/job. Thus, they are more proximal than CKs to what a Soldier does, and, as appropriate, to what or to whom it is done. As with CKs, Process (Operational) KSs are typically technical in nature, but they could encompass non-technical (i.e., intra- and inter-personal) requirements as well. For example, a Soldier serving as a platoon leader would require PKSs of the team activities related to different mission types, the tactics for executing those activities, how to modify and improvise on those tactics as needed, and so on.

In sum, whereas CKs are higher-order and facilitate the learning and acquisition of PKSs, PKSs are lower-order and more proximal to the Soldier's (or Officer's) work activities. At present, only CK descriptors will be developed, although PKSs could be added later.

Objectives and Purposes to be Served

CKs are intended to provide a common basis, or set of cross-descriptors, on which Army jobs could be rated or scaled for purposes of clustering jobs (i.e., to guide the sampling of Army jobs for criterion-related validation studies; to generalize, or transport, criterion-related validity estimates and predicted performance equations across jobs; to identify potential candidates for "mid-range" criterion measures, in particular knowledge tests).

Recommended Structure and Format for Content Knowledges (CKs)

As discussed, CKs represent labels and statements describing the developed capacities a Soldier (or Officer) needs to perform the core duties and work activities, technical and non-technical, required of their Army occupation/job. The following are recommendations for the format and structure of Content Ks and are intended to serve as a guide in their generation.

- *The total set of CKs developed should be sufficiently comprehensive.* That is, the set should include all of the important CKs and not simply constitute a sampling of representative CKs required of Soldiers (or Officers).
- *Statements should describe CKs and not work-related requirements and other worker characteristics.* CKs should describe the declarative knowledges needed by Soldiers (or Officers) to perform the core duties and work activities required of their Army occupation/job. CKs should not describe work-related requirements (e.g., work activities) or other worker-oriented characteristics (e.g., interests/values/temperament). In particular, CKs should not be a translation of a KWA into an occupation-specific KS statement.
- *Statements should reflect important CKs that are as objective, observable, and as fully specified as possible.* That is, CK statements should lend themselves to measurement, either

- *Statements should describe a complete and well-defined CK, making clear what is known, and, as appropriate, for what purpose it is known or understood.* CK statements should start with the clause “knowledge of,” followed by an object (noun), or set of objects (nouns), describing what is known. Avoid multiple nouns, or sets of nouns, which imply, or reflect, more than a single, well-defined body of declarative knowledge (e.g., subject area) needed for performance.

√	Knowledge of basic electronics concepts and principles
√	Knowledge of basic medical terminology and symbols
X	Knowledge of science
X	Knowledge of the proper clothing to wear and when

- *Statements should avoid reference to specific weapons, equipment, and tools.* CK statements should be written without making reference to specific WETs. CKs are intended to reflect a higher-level of generality than specific WETs.
- *Use standardized wording structure and consistent terminology.* CK statements should follow the same wording structure, as outlined in the preceding bullets. When referencing the same object use the same term consistently throughout.
- *Statements should be as simple and concise as possible, without sacrificing meaning.* When writing CK statements, compound and complex (hyphenated, slashed) word constructions (e.g., “Understands weapon operation/service/repair manuals...”) should be avoided. If the hyphen or slash means “or,” it is better to write “or.” Alternatively, if it means “and,” two statements may be warranted.
- *Statements should be descriptive rather than evaluative.* CKs should be descriptive, not prescriptive or evaluative.
- *Statements should avoid the use of examples (e.g., xxx) to clarify the boundaries of similar CKs.* During the drafting of CK statements, the use of examples for purposes of delineating the differences across similar, and potentially related, CKs should be avoided. SMEs tend to pay a lot of attention to the “e.g.,s.”, shifting their focus away from the stem of the CK statement. As much as feasible, differences across CK statements should be reflected in the statements themselves.

Proposed Steps and Procedure for Generating Content Knowledges (CKs)

The following are the proposed steps and procedure for generating CK labels and statements. The output of this process will be a set of CKs for use in workshops with proponent SMEs.

Activity 1. Starting with a pool of candidate descriptors, the Descriptor Development Team generates a preliminary taxonomy of CKs. Completing this activity involves the following steps

Step 1.1: Review candidate CK descriptors and existing taxonomies from the non-military, civilian sector. Candidates to start from include

- O*NET Knowledges and Education Requirements taxonomies
- OPM's Technical Competencies taxonomy
- Existing taxonomies of educational and instructional programs (e.g., from U.S. Department of Education)

Where feasible, this information could be supplemented by a review of college and technical school course catalogs.

Step 1.2: Create an Excel Workbook to document the CK development process. Creation of the Workbook involves importing candidates (from Step 1.1) determined to be most useful and coding the selected CK descriptors so that the CKs generated can be tracked/linked back to the relevant source material. A useful strategy for narrowing down, or otherwise refining, the initial list of candidate CK descriptors is to crosswalk each set of descriptors against each other, eliminating redundancies as needed.

Step 1.3: Divide the work so that each member of the Descriptor Development Team focuses on and responsible for a cluster(s) of related CKs (e.g., according to major subject matter).

Step 1.4: Generate a first draft of CKs. An important part of this step will involve customizing (some) preliminary taxonomy of CKs to the Army by crosswalking CKs with Army-specific information. To do this, first reformat and revise the candidate CK descriptors from the non-military, civilian sector in line with the proposed guidelines and specifications, as outlined here, to ensure consistency in breadth, scope, and level of generality. Next, crosswalk this preliminary taxonomy with the existing ASVAB test specifications (e.g., Oppler, Russell, Rosse, Keil, Meiman, & Welsh, 1997). Finally, crosswalk the preliminary taxonomy with the Army's current Career Management Fields (CFMs). On the basis of these crosswalks, make revisions and/or refinements to the preliminary taxonomy, as needed.

Step 1.5: Prepare the CK Workbook, ensuring that the CKs and documentation on all source materials, and so on, are included. When finished, post the Workbook to the designated folder on the S-drive.

Activity 2. A Descriptor Review Team reviews the preliminary CK taxonomy to ensure consistency with proposed guidelines and specifications and that the statements provide sufficient and reasonably comprehensive coverage of the domain. Descriptor Development Team implements recommended edits, as needed.

Activity 3. Conduct a sorting exercise with the Descriptor Development Team using the preliminary CK taxonomy. The purpose of this sorting exercise is to identify and recommend possible modifications and refinements to the preliminary CK taxonomy. In brief, this sorting exercise will involve sorting the CKs into the MDs previously developed. A senior member of the Descriptor Review Team will facilitate the sorting exercise.

Activity 4. The Expert Advisory Panel, high-level Army SMEs (if available), and Army job analysts review the preliminary CK taxonomy and select metric(s). The purpose of this review is threefold: (a) to identify and recommend modifications and edits to the preliminary CK taxonomy; (b) to identify and recommend potential candidates for elimination, if needed (e.g., CKs that are not relevant to the Army); and (c) to select metric(s) for ratings jobs on their CKs requirements. The Descriptor Development Team implements recommended edits, as needed.

Activity 5. Conduct workshops with Army SMEs from the targeted jobs. The purpose of these workshops is to collect feedback and preliminary data on the KWAs from Army SMEs.

Recommendations and Specifications on CKs Metrics

Accompanying the CK descriptors are metrics (i.e., scales) by which Army occupations/jobs could be assessed on these same descriptors. At a minimum, these metrics should include generic, Likert-type scales measuring the importance of the CK to the performance of the occupation/job. In particular, using the existing O*NET Knowledge scales would enable and facilitate comparisons between the prototype job descriptors and existing alternatives.

Work Interests, Values, and Styles

Definitions

Work interests, values, and styles are descriptions of enduring personal characteristics representing work-related preferences a Soldier (or Officer) needs to perform or to persist in an Army occupation or job, or cluster of occupations or jobs. *Work interests* describe a Soldier's (or Officer's) preferences for, or likes and dislikes, regarding specific work-related activities (e.g., performing physically-oriented work activities like running, jumping, lifting heavy objects, etc.). *Work values* describe a Soldier's (or Officer's) goals, beliefs, or ideals regarding specific work-related requirements (e.g., working independently, performing a variety of activities, etc.). *Work styles* describe a Soldier's (or Officer's) behavioral tendencies, habits, or styles reflecting preferences for specific work-related requirements (e.g., working cooperatively with others, demonstrating initiative, etc.).

Objectives and Purposes to be Served

Like CKs, work interests, values, and styles are intended to provide a common basis, or set of cross-descriptors, on which Army jobs could be rated or scaled for purposes of clustering jobs (i.e., to guide the sampling of Army jobs for criterion-related validation studies; to generalize, or transport, criterion-related validity estimates and predicted performance equations across jobs; to identify potential candidates for “mid-range” criterion measures, in particular knowledge tests).

Proposed Steps and Procedure for Generating Work Interests, Values, and Styles Descriptors

The following are the proposed steps and procedure for generating work interests, values, and styles descriptors. The output of this process will be a set of work interests, values, and styles for use in job analysis workshops and questionnaires with proponent SMEs.

Activity 1. Starting with a pool of candidate descriptors, the Descriptor Development Team generates preliminary taxonomies of work interests, values, and styles. Completing this activity involves the following steps

Step 1.1: Review candidate work interests, values, and styles descriptors and existing taxonomies. Candidates to start from include:

- The work interests, values, and styles taxonomies formulated and used as the basis for developing predictor measures for the Army21 projects (Perform21, Select21, Army Class)
- O*NET Work Interests and Work Styles taxonomies

Step 1.2: Create an Excel Workbook to document the work interests, values, and styles development process. Import candidate descriptors from Step 1.1 and then code the selected work interests, values, and styles descriptors so that they can be tracked or linked back to the relevant source material.

Step 1.3: Generate an initial draft of work interests, values, and styles. A useful strategy for narrowing down, or otherwise refining, the initial list of candidate work interests/values/styles descriptors is to crosswalk each set of descriptors against each other, eliminating redundancies as needed.

Step 1.4: Prepare the Work Interests/Values/Styles Workbook, ensuring that the final draft set of descriptors and documentation on all source materials, and so on, are included. When finished, post the Workbook to the designated folder on the S-drive.

Activity 2. A Descriptor Review Team reviews the preliminary work interests, values and styles taxonomies to ensure consistency with proposed guidelines and specifications and that the statements provide sufficient and reasonably comprehensive coverage of the domain. Descriptor Development Team implements recommended edits, as needed.

Activity 3. Conduct a sorting exercise with the Descriptor Development Team using the preliminary work interests, values, and styles taxonomies. The purpose of this sorting exercise is to identify and recommend possible modifications and refinements to the preliminary work interests, values, and styles taxonomies. In brief, this sorting exercise will involve sorting the work interests, values, and styles into the MDs previously developed. A senior member of the Descriptor Review Team will facilitate the sorting exercise.

Activity 4. The Expert Advisory Panel, high-level Army SMEs (if available), and Army job analysts review the preliminary work interests, values, and styles taxonomies and select metric(s). The purpose of this review is threefold: (a) to identify and recommend modifications and edits to the preliminary work interests, values, and styles taxonomies; (b) to identify and recommend potential candidates for elimination, if needed (e.g., work interests/values/styles that are not relevant to the Army); and (c) to select metric(s) for ratings jobs on the chosen descriptors. The Descriptor Development Team implements recommended edits, as needed.

Activity 5. Conduct workshops with Army SMEs from the targeted jobs. The purpose of these workshops is to collect feedback and preliminary data on the work interests, values, and styles from Army SMEs.

Recommendations and Specifications on Work Interests/Values/Styles Metrics

Accompanying the work interests/values/styles descriptors are metrics (i.e., scales) on which Army occupations or jobs could be rated or scaled. At a minimum, these metrics should include Likert-type scales measuring the importance of the work interest/value/style to the Army occupation/job.

Abilities and Aptitudes

Definitions

Abilities and aptitudes are descriptions of enduring personal characteristics that enable a Soldier (or Officer) to perform the mental, spatial, physical, and physiological requirements underlying the core duties and work activities, technical and non-technical, required of an Army occupation or job, or cluster of occupations or jobs.

Objectives and Purposes to be Served

Like CKs and other work interests/values/styles, abilities and aptitudes are intended to provide a common basis, or set of cross-descriptors, on which Army jobs could be rated or scaled for purposes of clustering jobs (i.e., to guide the sampling of Army jobs for criterion-related validation studies; to generalize, or transport, criterion-related validity estimates and predicted performance equations across jobs; to identify potential candidates for “mid-range” criterion measures, in particular knowledge tests).

Proposed Steps and Procedure for Generating Abilities and Aptitudes Descriptors

The following are the proposed steps and procedure for generating abilities and aptitudes descriptors. The output of this process will be a set of abilities and aptitudes descriptors for use in job analysis workshops and questionnaires with proponent SMEs.

Activity 1. Starting with a pool of candidate descriptors, the Descriptor Development Team generates a preliminary taxonomy of abilities and aptitudes. Completing this activity involves the following steps

Step 1.1: Review the O*NET Ability taxonomy. The O*NET Ability taxonomy represents a comprehensive and well-researched taxonomy of abilities and aptitudes required of most, if not all, occupations or jobs.

Step 1.2: Create an Excel Workbook to document the abilities and aptitudes taxonomy development process. Import O*NET Ability descriptors and then code them so that they can be tracked or linked back to the relevant source material, as needed.

Step 1.3: Refine or modify the O*NET Ability taxonomy, as needed. Cross-walk the O*NET Ability taxonomy against more recent ability and aptitude taxonomies, eliminating redundancies as needed.

Step 1.4: Prepare the Abilities and Aptitudes Workbook, ensuring that the final draft set of descriptors and documentation on all source materials, and so on, are included. When finished, post the Workbook to the designated folder on the S-drive.

Activity 2. A Descriptor Review Team reviews the preliminary abilities and aptitudes taxonomy to ensure consistency with proposed guidelines and specifications and that the statements provide sufficient and reasonably comprehensive coverage of the domain. Descriptor Development Team implements recommended edits, as needed.

Activity 3. Conduct a sorting exercise with the Descriptor Development Team using the preliminary abilities and aptitudes taxonomy. The purpose of this sorting exercise is to identify and recommend possible modifications and refinements to the preliminary abilities and aptitudes taxonomy. In brief, this sorting exercise will involve mapping the abilities and aptitudes descriptors to the MDs previously developed. A senior member of the Descriptor Review Team will facilitate the sorting exercise.

Activity 4. The Expert Advisory Panel, high-level Army SMEs (if available), and Army job analysts review the preliminary abilities and aptitudes taxonomies and select metric(s). The purpose of this review is threefold: (a) to identify and recommend modifications and edits to the preliminary abilities and aptitudes taxonomy; (b) to identify and recommend potential candidates for elimination, if needed (e.g., abilities and aptitudes that are not relevant to the Army); and (c) to select metric(s) for ratings jobs on the final set of abilities and aptitudes descriptors. The Descriptor Development Team implements recommended edits, as needed.

Activity 5. Conduct workshops with Army SMEs from the targeted jobs. The purpose of these workshops is to collect feedback and preliminary data on the abilities and aptitudes from Army SMEs.

Recommendations and Specifications on Abilities and Aptitudes Metrics

Accompanying the abilities and aptitudes descriptors are metrics (i.e., scales) on which Army occupations or jobs could be rated or scaled. At a minimum, these metrics should include Likert-type scales measuring the importance of the ability or aptitude to the Army occupation/job.

Appendix B

Description and Layout of the Relational Database

Overview of the Database Design

The database developed for this project was designed as a relational database, consisting of a series of reference and data tables linked by unique identifiers associated with an Army job and the descriptor domain being sampled.⁹ The database's primary objective, near term, is to systematically store ratings data collected using the prototype approach across five domains – (a) Work Activities, (b) Occupation Specific Knowledge and Skills, (c) Work Context, (d) Work Interests, Values and Styles, and (e) Aptitudes and Abilities. Over time, a user interface could be developed that allows for easy reporting and editing capabilities.

Reference Tables

The following tables contain reference data that will be used across domain.

* indicates a field used in the Primary Key.

** indicates a field used in a secondary index.

JOB_REF

Field Name	Type	Length	Field Description
JOB_ID**	Integer	2	Unique auto generated ID for each job.
MOS_ID*	Varchar	3	From MOS_REF
SKILL_LVL_ID*	Tinyint	1	From SKILL_LVL_REF
DUTY_POS_ID*	Varchar	5	From DUTY_POS_REF
ASSIGNMENT_ID*	Varchar	5	From ASSIGNMENT_REF

MOS_REF

Field Name	Type	Length	Field Description
MOS_ID*	Varchar	7	Unique ID for each MOS
MOS_TITLE	Varchar	80	Title of MOS
CMF_ID	Varchar	2	From CMF_REF
APT_CLUSTER_ID	Varchar	2	From APT_CLUSTER_REF

CMF_REF

Field Name	Type	Length	Field Description
CMF_ID*	Varchar	6	Unique ID for each CMF
CMF_TITLE	Varchar	80	Title of CMF

APT_CLUSTER_REF

Field Name	Type	Length	Field Description
APT_CLUSTER_ID*	Varchar	6	Unique ID for each Aptitude Area Cluster
APT_TITLE	Varchar	80	Title of Aptitude Area Cluster

⁹ A “job” can be defined by any combination of the following: (a) MOS, (b) Skill Level, (c) Duty Position, or (d) Assignment.

SKILL_LVL_REF

Field Name	Type	Length	Field Description
SKILL_LVL_ID*	Tinyint	12	Unique ID for each Skill Level (1-5)
SKILL_LVL_TITLE	Varchar	80	Skill Level Title

DUTY_POS_REF

Field Name	Type	Length	Field Description
DUTY_POS_ID*	Varchar	5	Unique ID for each Duty Position
DUTY_POS_TITLE	Varchar	80	Duty Position Title

ASSIGNMENT_REF

Field Name	Type	Length	Field Description
ASSIGNMENT_ID*	Varchar	5	Unique ID for each Assignment
ASSIGNMENT_TITLE	Varchar	80	Assignment Title

METRIC_REF

Field Name	Type	Length	Field Description
METRIC_DOM_ID*	Small Int	2	Unique ID for each Metric Category/Value/Domain
METRIC_VALUE*	Varchar	1	Value for a particular Metric (i.e. 1-7)
METRIC_DESC	Varchar	20	Description of Metric Value (i.e. Very Important)

METRIC x DOMAIN

Field Name	Type	Length	Field Description
METRIC_DOM_ID**	Small Int	2	Unique ID for each Metric Category x Domain
METRIC_CAT_ID*	Small Int	2	Unique ID for Each Metric Category
DOMAIN_ID*	Varchar	4	Domain ID from DOMAIN_REF table.

DOMAIN_REF

Field Name	Type	Length	Field Description
DOMAIN_ID*	Varchar	4	Unique ID for each Domain
DOMAIN_TITLE	Varchar	50	Domain Title

METRIC_CAT_REF

Field Name	Type	Length	Field Description
METRIC_CAT_ID*	Small Int	2	Unique ID for Each Metric Category

METRIC_CATEGORY	Varchar	12	Metric Category (Frequency, Importance)
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RATER_REF

Field Name	Type	Length	Field Description
RATER_ID*	Tiny Int	1	Unique ID for Each Rater Type.
RATER_DESC	Varchar	60	Rater Type (Overall, Supervisor, Incumbent)

Work Activities

The following tables describe the way work activity data will be stored.

MD_REF

Field Name	Type	Length	Field Description
MD_ID*	Varchar	6	Unique identifier for Major Duty
MD_TITLE	Varchar	80	MD title
MD_DESCRIPTION	Varchar	255	MD Description
MD_CAT_ID	Varchar	9	From MD_CAT_REF

MD_CAT_REF

Field Name	Type	Length	Field Description
MD_CAT_ID*	Varchar	9	Unique identifier for Major Duty Category
MD_CAT_TITLE	Varchar	50	Job-specific tech, non-job specific tech, non-tech

KWAC_REF

Field Name	Type	Length	Field Description
KWAC_ID*	Varchar	8	Unique identifier for Key Work Activity Category
KWAC_DESC	Varchar	200	Description of KWAC

MD x KWAC

Field Name	Type	Length	Field Description
MD_ID*	Varchar	6	Unique identifier, From MD_REF
KWAC_ID*	Varchar	8	Unique identifier, From KWAC_REF

KWAS_REF

Field Name	Type	Length	Field Description
KWAS_ID*	Varchar	10	Unique identifier for Key Work Activity Statement
KWAS_DESC	Varchar	150	Description of KWAS

SOURCE_CD	Varchar	50	Source Code
SOURCE_STMT	Varchar	150	Source Statement
SOURCE_STMT_DT	Date	8	Effective date of source statement
KWAC_ID	Varchar	8	From KWAC_ID; Key Work Activity Code KWAS is associated with

JOB x MD

Field Name	Type	Length	Field Description
JOB_ID*	Integer	2	From JOB_REF
MD_ID*	Varchar	6	From MD_REF
METRIC_DOM_ID*	Small Int	2	From METRIC_REF; Metric Category
METRIC_SIZE	Small Int	2	Sample Size for this metric.
METRIC_MEAN	Double	8	Mean for this metric.
METRIC_ICC1	Double	8	Intraclass Correlation 1
METRIC_ICC2	Double	8	Intraclass Correlation 2
METRIC_STD	Double	8	Standard Deviation for this metric
RATER_ID*	Tiny Int	1	From RATER_REF table
METRIC_STAT1	Double	8	Place Holder
METRIC_STAT2	Double	8	Place Holder
METRIC_DT*	Date	8	Date metric calculated
METRIC_MEDIAN	Double	8	Median for this Metric
METRIC_SKEWNESS	Double	8	Skewness for this Metric

JOB x KWAC

Field Name	Type	Length	Field Description
JOB_ID*	Integer	2	From JOB_REF
KWAC_ID*	Varchar	8	From KWAC_REF
METRIC_DOM_ID*	Small Int	2	From METRIC_REF; Metric Category
METRIC_SIZE	Small Int	2	Size for this metric.
METRIC_MEAN	Double	8	Mean for this metric.
METRIC_ICC1	Double	8	Intraclass Correlation 1
METRIC_ICC2	Double	8	Intraclass Correlation 2
METRIC_STD	Double	8	Standard Deviation for this metric
RATER_ID*	Tiny Int	1	From RATER_REF table
METRIC_STAT1	Double	8	Place Holder
METRIC_STAT2	Double	8	Place Holder
METRIC_DT*	Date	8	Date metric calculated
METRIC_MEDIAN	Double	8	Median for this Metric
METRIC_SKEWNESS	Double	8	Skewness for this Metric

JOB x KWAS

Field Name	Type	Length	Field Description
JOB_ID*	Integer	2	From JOB_REF
KWAS_ID*	Varchar	10	From KWAS_REF
METRIC_DOM_ID*	Small Int	2	From METRIC_REF; Metric Category
METRIC_SIZE	Small Int	2	Size for this metric.
METRIC_MEAN	Double	8	Mean for this metric.
METRIC_ICC1	Double	8	Intraclass Correlation 1
METRIC_ICC2	Double	8	Intraclass Correlation 2
METRIC_STD	Double	8	Standard Deviation for this metric
RATER_ID*	Tiny Int	1	From RATER_REF table
METRIC_STAT1	Double	8	Place Holder
METRIC_STAT2	Double	8	Place Holder
METRIC_DT*	Date	8	Date metric calculated
METRIC_MEDIAN	Double	8	Median for this Metric
METRIC_SKEWNESS	Double	8	Skewness for this Metric

WET_REF

Field Name	Type	Length	Field Description
WET_ID*	Varchar	4	Unique ID for WET, this is the FSC Code.
WET_DESC	Varchar	100	Description of WET

JOB x WET

Field Name	Type	Length	Field Description
JOB_ID*	Integer	2	From JOB_REF
KWAS_ID*	Varchar	10	From KWAS_REF
WET_ID*	Varchar	4	From WET_REF
METRIC_DOM_ID*	Small Int	2	From METRIC_REF; Metric Category
METRIC_SIZE	Small Int	2	Size for this metric.
METRIC_MEAN	Double	8	Mean for this metric.
METRIC_ICC1	Double	8	Intraclass Correlation 1
METRIC_ICC2	Double	8	Intraclass Correlation 2
METRIC_STD	Double	8	Standard Deviation for this metric
RATER_ID*	Tiny Int	1	From RATER_REF table
METRIC_STAT1	Double	8	Place Holder
METRIC_STAT2	Double	8	Place Holder
METRIC_DT*	Date	8	Date metric calculated
METRIC_MEDIAN	Double	8	Median for this Metric
METRIC_SKEWNESS	Double	8	Skewness for this Metric

Occupation Specific Knowledges and Skills

The following tables describe the data to be collected and stored under the Occupation Specific Knowledges and Skills domain.

CK_REF

Field Name	Type	Length	Field Description
CK_ID*	Varchar	8	Unique identifier for Content Knowledges (CK)
CK_TITLE	Varchar	80	Title of CK
CK_DESC	Varchar	255	Description of CK
CK_CAT_ID	Varchar	2	From CK_CAT_REF

CK_CAT_REF

Field Name	Type	Length	Field Description
CK_CAT_ID*	Varchar	2	Unique identifier for CK Categories.
CK_CAT_TITLE	Varchar	50	CK Category Titles

JOB x CK

Field Name	Type	Length	Field Description
JOB_ID*	Integer	2	From JOB_REF
CK_ID*	Varchar	8	From CK_REF
METRIC_DOM_ID*	Small Int	2	From METRIC_REF; Metric Category
METRIC_SIZE	Small Int	2	Size for this metric.
METRIC_MEAN	Double	8	Mean for this metric.
METRIC_ICC1	Double	8	Intraclass Correlation 1
METRIC_ICC2	Double	8	Intraclass Correlation 2
METRIC_STD	Double	8	Standard Deviation for this metric
RATER_ID*	Tiny Int	1	From RATER_REF table
METRIC_STAT1	Double	8	Place Holder
METRIC_STAT2	Double	8	Place Holder
METRIC_DT*	Date	8	Date metric calculated
METRIC_MEDIAN	Double	8	Median for this Metric
METRIC_SKEWNESS	Double	8	Skewness for this Metric

Work Context

The following tables describe the data to be collected and stored under the Work Context domain.

WORK_CONTEXT_REF

Field Name	Type	Length	Field Description
WORK_CONT_ID*	Varchar	8	Unique identifier for Work Context
WORK_CONT_TITLE	Varchar	80	Title of Work Context
WORK_CONT_DESC	Varchar	255	Description of Work Context
WORK_CONT_CAT_ID	Varchar	2	From WORK_CONTEXT_CAT_REF

WORK_CONTEXT_CAT_REF

Field Name	Type	Length	Field Description
WORK_CONT_CAT_ID*	Varchar	9	Unique Identifier for Work Context Categories
WORK_CONT_CAT_TITLE	Varchar	50	Work Context Category Title.

JOB x WORK_CONTEXT

Field Name	Type	Length	Field Description
JOB_ID*	Integer	2	From JOB_REF
WORK_CONT_ID*	Varchar	8	From WORK_CONTEXT_REF
METRIC_DOM_ID*	Small Int	2	From METRIC_REF; Metric Category
METRIC_SIZE	Small Int	2	Size for this metric.
METRIC_MEAN	Double	8	Mean for this metric.
METRIC_ICC1	Double	8	Intraclass Correlation 1
METRIC_ICC2	Double	8	Intraclass Correlation 2
METRIC_STD	Double	8	Standard Deviation for this metric
RATER_ID*	Tiny Int	1	From RATER_REF table
METRIC_STAT1	Double	8	Place Holder
METRIC_STAT2	Double	8	Place Holder
METRIC_DT*	Date	8	Date metric calculated
METRIC_MEDIAN	Double	8	Median for this Metric
METRIC_SKEWNESS	Double	8	Skewness for this Metric

Work Interests, Values, and Styles

The following tables describe the data to be collected and stored under the Work Interests, Values, and Styles domain.

INT_REF

Field Name	Type	Length	Field Description
INT_ID*	Varchar	8	Unique identifier for Interest/Values/Style
INT_TITLE	Varchar	80	Title of Interest/Values/Style
INT_DESC	Varchar	255	Description of Interest/Values/Style
INT_CAT_ID	Varchar	2	From INT_CAT_REF

INT_CAT_REF

Field Name	Type	Length	Field Description
INT_CAT_ID*	Varchar	2	Unique ID for Interest/Values/Style Category
INT_CAT_TITLE	Varchar	50	Interest/Values/Style Category Title

JOB x INT

Field Name	Type	Length	Field Description
JOB_ID*	Integer	2	From JOB_REF
INT_ID*	Varchar	8	From INT_REF
METRIC_DOM_ID*	Small Int	2	From METRIC_REF; Metric Category
METRIC_SIZE	Small Int	2	Size for this metric.
METRIC_MEAN	Double	8	Mean for this metric.
METRIC_ICC1	Double	8	Intraclass Correlation 1
METRIC_ICC2	Double	8	Intraclass Correlation 2
METRIC_STD	Double	8	Standard Deviation for this metric
RATER_ID*	Tiny Int	1	From RATER_REF table
METRIC_STAT1	Double	8	Place Holder
METRIC_STAT2	Double	8	Place Holder
METRIC_DT*	Date	8	Date metric calculated
METRIC_MEDIAN	Double	8	Median for this Metric
METRIC_SKEWNESS	Double	8	Skewness for this Metric

Abilities and Aptitudes

The following tables describe the data to be collected and stored under the Abilities and Aptitudes domain.

APT_REF

Field Name	Type	Length	Field Description
APT_ID*	Varchar	8	Unique identifier for Aptitudes and Abilities
APT_TITLE	Varchar	80	Title for Aptitudes and Abilities
APT_DESC	Varchar	255	Description for Aptitudes and Abilities
APT_CAT_ID	Varchar	2	From APT_CAT_REF

APT_CAT_REF

Field Name	Type	Length	Field Description
APT_CAT_ID*	Varchar	6	Unique ID for Aptitudes and Ability Category.
APT_CAT_TITLE	Varchar	50	Aptitudes and Ability Category Title.

JOB x APT

Field Name	Type	Length	Field Description
JOB_ID*	Integer	2	From JOB_REF
APT_ID*	Varchar	8	From APT_REF
METRIC_DOM_ID*	Small Int	2	From METRIC_REF; Metric Category
METRIC_SIZE	Small Int	2	Size for this metric.
METRIC_MEAN	Double	8	Mean for this metric.
METRIC_ICC1	Double	8	Intraclass Correlation 1
METRIC_ICC2	Double	8	Intraclass Correlation 2
METRIC_STD	Double	8	Standard Deviation for this metric
RATER_ID*	Tiny Int	1	From RATER_REF table
METRIC_STAT1	Double	8	Place Holder
METRIC_STAT2	Double	8	Place Holder
METRIC_DT*	Date	8	Date metric calculated
METRIC_MEDIAN	Double	8	Median for this Metric
METRIC_SKEWNESS	Double	8	Skewness for this Metric

Appendix C
Work Activities Questionnaires

Army Work Activities Questionnaire

11B Infantryman

Instructions

The purpose of this questionnaire is to find out about the work activities performed by *first-term Soldiers in your MOS*. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

This questionnaire consists of a series of work activities describing what first-term Soldiers in your MOS do, to whom or what it is done, and potentially for what purpose it is done. For example:

Operate radio communications equipment.

For each work activity, you will be asked to make three ratings.

The first involves rating each work activity in terms of its *importance to the job of first-term Soldiers in your MOS*. You will use the following scale to make this rating:

<i>Not Important</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>
1	2	3	4	5

The second involves rating each work activity in terms of *how difficult it is for first term Soldiers in your MOS to learn to perform the activity to standard through classroom training*. You will use the following scale to make this rating:

<i>Very Easy to Learn</i>	<i>Somewhat Easy to Learn</i>	<i>Neither Easy nor Difficult to Learn</i>	<i>Somewhat Difficult to Learn</i>	<i>Very Difficult to Learn</i>
1	2	3	4	5

The third involves rating each work activity in terms of *how serious the negative consequences would be for the Soldier's unit or the unit's mission if a first-term Soldier in your MOS failed to successfully perform the activity*. You will use the following scale to make this rating:

<i>Not Serious</i>	<i>Somewhat Serious</i>	<i>Serious</i>	<i>Very Serious</i>	<i>Extremely Serious</i>
1	2	3	4	5

You will complete this set of ratings twice. You will first rate all of the individual work activities. You will then rate the higher-level categories these work activities fall under.

Part 1 – Individual Work Activities

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Operate and maintain firearms and personal weapons (e.g., grenade launchers, grenades).			
1	Select and prepare firing positions for firearms and personal weapons (e.g., grenade launchers, grenades).			
2	Mount and dismount sights, lights, and other accessories on firearms and personal weapons (e.g., grenade launchers, grenades).			
3	Mount and dismount machine guns or other personal weapons on tripods.			
4	Construct field-expedient firing aids for firearms and personal weapons.			
5	Load, unload, and correct malfunctions in firearms and personal weapons.			
6	Aim, track, and fire firearms or personal weapons at targets, stationary or moving.			
7	Coordinate the firing of firearms or personal weapons with the actions or movement of others.			
8	Perform routine maintenance checks and services on firearms and personal weapons.			
9	Troubleshoot firearm and personal weapon malfunctions and misfires.			
B	Operate and maintain armored vehicle-mounted weapons (e.g., machine guns, rocket launchers).			
10	Mount and dismount weapon (e.g., machine gun, rocket launcher) on armored vehicle.			
11	Load, unload, and correct malfunctions in armored vehicle-mounted weapon (e.g., machine gun, rocket launcher).			
12	Aim, track, and fire armored vehicle-mounted weapon at targets, stationary or moving.			
13	Coordinate the firing of armored vehicle-mounted weapon with the actions or movement of others.			
14	Perform routine maintenance checks and services on vehicle-mounted weapon.			
15	Troubleshoot vehicle-mounted weapon malfunctions and misfires.			
C	Engage in close combat or self-defense.			
17	Engage enemy in hand.			
18	Engage or defend self against enemy with bayonet or other hand.			
D	Navigate and move in the field.			
19	Determine the direction or location of self and others (friendly or foe), with or without the aid of maps or other navigational equipment (e.g., compass, GPS).			
20	Navigate from point to point using maps and navigational equipment (e.g., compass, GPS), day or night.			
21	Camouflage or hide self and equipment to avoid detection.			
22	Practice noise, light, and litter discipline to conceal movement or location.			
23	Move self, weapons, gear, or equipment through the field and around obstacles (natural or man-made), under fire, day or night.			

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
24	Locate, recover, and neutralize antipersonnel mines or other unexploded ordinance.			
25	React to counterattack, ambush, or other defensive combat situations during movement.			
E	Drive and maintain armored wheeled and tracked vehicles.			
26	Prepare armored wheeled and tracked vehicles for mission.			
27	Drive armored wheeled vehicles alone or in a convoy on a tactical or non-tactical mission.			
28	Drive armored tracked vehicle alone or in a convoy on a tactical or non-tactical mission.			
29	Perform routine maintenance checks and services on armored wheeled or tracked vehicle.			
F	Recover and tow armored wheeled and tracked vehicles.			
30	Recover disabled armored vehicle (wheeled or tracked) in the field using available resources and equipment.			
31	Prepare and tow disabled armored vehicle (wheeled or tracked) using standard equipment and vehicles.			
G	Set-up, operate, and maintain secure communications equipment.			
32	Set-up and install secure ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
33	Operate ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
34	Perform routine maintenance checks and services on mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
35	Troubleshoot mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
36	Identify and respond to an electronic attack and other security threats to a secure communications network.			
37	Encode and decode messages delivered over secure ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
H	Protect against chemical, biological, radiological and nuclear (CBRN) attacks or hazards.			
38	Prepare for or react to a CBRN attack or hazard by protecting self and others using appropriate gear or equipment.			
39	Detect, monitor, or measure CBRN agents or levels.			
40	Decontaminate self or equipment using decontamination kits.			
I	Perform first aid and treat casualties.			
41	Evaluate a casualty's vital signs, status, and severity of their injuries (e.g., blood loss, shock).			
42	Perform CPR, prevent shock, clear the throat of a casualty, or perform other basic first aid.			
43	Perform first aid for an open wound or other injuries (e.g., burns, bone fractures) received during combat.			
44	Perform first aid for an open wound or other injuries (e.g., burns, bone fractures) received in a non-combat situation.			
45	Perform first aid for a CBRN casualty.			

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
J	Evacuate casualties or remains.			
46	Administer an IV and stabilize casualty for transport.			
47	Transport a casualty, on foot or using a vehicle or other transport equipment.			
48	Request a medical evacuation.			
49	Recover, evacuate, or inter remains.			
K	Set-up, operate, and maintain secure communications equipment.			
50	Set-up and install secure ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
51	Operate ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
52	Perform routine maintenance checks and services on mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
53	Troubleshoot mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
54	Identify and respond to an electronic attack and other security threats to a secure communications network.			
55	Encode and decode messages delivered over secure ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
L	Guard, search, and monitor detainees or prisoners.			
56	Guard or protect detainees or prisoners.			
57	Search detainees or prisoners for weapons or prohibited items.			
58	Restrain or subdue detainees or prisoners using the appropriate level of force.			
59	Monitor detainee or prisoner activity.			
60	Escort detainees or prisoners to a new location, inside or outside a detainment or corrections facility.			
M	Guard, search, or patrol areas or locations.			
61	Guard or patrol an assigned area(s) or location(s).			
62	Search an area or location for a person(s) or object(s).			
63	Obtain information from the general public or potential witnesses on suspicious activity in area or location.			
64	Apprehend, search, and detain a person(s) for suspicious activity.			
65	Restrain or subdue a person(s) using the appropriate level of force.			
66	Defuse a situation(s) using interpersonal skills.			
N	Guard and control vehicle and pedestrian traffic.			
67	Guard or patrol key access points or entrances to restricted areas (e.g., dismount points, roadblocks, or checkpoints).			
68	Search or inspect vehicles or persons for explosive devices or prohibited items.			
69	Direct or control vehicle or pedestrian traffic.			
70	Monitor vehicle or pedestrian traffic for suspicious activity.			
71	Direct or control the behavior of groups or crowds of non-combatants, under emergency and non-emergency conditions.			

Part 2 – Work Activity Categories

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Operate and maintain firearms and personal weapons (e.g., grenade launchers, grenades).			
1	Select and prepare firing positions for firearms and personal weapons (e.g., grenade launchers, grenades).			
2	Mount and dismount sights, lights, and other accessories on firearms and personal weapons (e.g., grenade launchers, grenades).			
3	Mount and dismount machine guns or other personal weapons on tripods.			
4	Construct field-expedient firing aids for firearms and personal weapons.			
5	Load, unload, and correct malfunctions in firearms and personal weapons.			
6	Aim, track, and fire firearms or personal weapons at targets, stationary or moving.			
7	Coordinate the firing of firearms or personal weapons with the actions or movement of others.			
8	Perform routine maintenance checks and services on firearms and personal weapons.			
9	Troubleshoot firearm and personal weapon malfunctions and misfires.			
B	Operate and maintain armored vehicle-mounted weapons (e.g., machine guns, rocket launchers).			
10	Mount and dismount weapon (e.g., machine gun, rocket launcher) on armored vehicle.			
11	Load, unload, and correct malfunctions in armored vehicle-mounted weapon (e.g., machine gun, rocket launcher).			
12	Aim, track, and fire armored vehicle-mounted weapon at targets, stationary or moving.			
13	Coordinate the firing of armored vehicle-mounted weapon with the actions or movement of others.			
14	Perform routine maintenance checks and services on vehicle-mounted weapon.			
15	Troubleshoot vehicle-mounted weapon malfunctions and misfires.			
C	Engage in close combat or self-defense.			
17	Engage enemy in hand.			
18	Engage or defend self against enemy with bayonet or other hand.			
D	Navigate and move in the field.			
19	Determine the direction or location of self and others (friendly or foe), with or without the aid of maps or other navigational equipment (e.g., compass, GPS).			
20	Navigate from point to point using maps and navigational equipment (e.g., compass, GPS), day or night.			
21	Camouflage or hide self and equipment to avoid detection.			
22	Practice noise, light, and litter discipline to conceal movement or location.			
23	Move self, weapons, gear, or equipment through the field and around obstacles (natural or man-made), under fire, day or night.			

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
24	Locate, recover, and neutralize antipersonnel mines or other unexploded ordinance.			
25	React to counterattack, ambush, or other defensive combat situations during movement.			
E	Drive and maintain armored wheeled and tracked vehicles.			
26	Prepare armored wheeled and tracked vehicles for mission.			
27	Drive armored wheeled vehicles alone or in a convoy on a tactical or non-tactical mission.			
28	Drive armored tracked vehicle alone or in a convoy on a tactical or non-tactical mission.			
29	Perform routine maintenance checks and services on armored wheeled or tracked vehicle.			
F	Recover and tow armored wheeled and tracked vehicles.			
30	Recover disabled armored vehicle (wheeled or tracked) in the field using available resources and equipment.			
31	Prepare and tow disabled armored vehicle (wheeled or tracked) using standard equipment and vehicles.			
G	Set-up, operate, and maintain secure communications equipment.			
32	Set-up and install secure ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
33	Operate ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
34	Perform routine maintenance checks and services on mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
35	Troubleshoot mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
36	Identify and respond to an electronic attack and other security threats to a secure communications network.			
37	Encode and decode messages delivered over secure ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
H	Protect against chemical, biological, radiological and nuclear (CBRN) attacks or hazards.			
38	Prepare for or react to a CBRN attack or hazard by protecting self and others using appropriate gear or equipment.			
39	Detect, monitor, or measure CBRN agents or levels.			
40	Decontaminate self or equipment using decontamination kits.			
I	Perform first aid and treat casualties.			
41	Evaluate a casualty's vital signs, status, and severity of their injuries (e.g., blood loss, shock).			
42	Perform CPR, prevent shock, clear the throat of a casualty, or perform other basic first aid.			
43	Perform first aid for an open wound or other injuries (e.g., burns, bone fractures) received during combat.			
44	Perform first aid for an open wound or other injuries (e.g., burns, bone fractures) received in a non-combat situation.			
45	Perform first aid for a CBRN casualty.			

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
J	Evacuate casualties or remains.			
46	Administer an IV and stabilize casualty for transport.			
47	Transport a casualty, on foot or using a vehicle or other transport equipment.			
48	Request a medical evacuation.			
49	Recover, evacuate, or inter remains.			
K	Set-up, operate, and maintain secure communications equipment.			
50	Set-up and install secure ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
51	Operate ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
52	Perform routine maintenance checks and services on mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
53	Troubleshoot mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
54	Identify and respond to an electronic attack and other security threats to a secure communications network.			
55	Encode and decode messages delivered over secure ground and mobile communications equipment (e.g., ground and airborne radios, tactical telephones).			
L	Guard, search, and monitor detainees or prisoners.			
56	Guard or protect detainees or prisoners.			
57	Search detainees or prisoners for weapons or prohibited items.			
58	Restrain or subdue detainees or prisoners using the appropriate level of force.			
59	Monitor detainee or prisoner activity.			
60	Escort detainees or prisoners to a new location, inside or outside a detention or corrections facility.			
M	Guard, search, or patrol areas or locations.			
61	Guard or patrol an assigned area(s) or location(s).			
62	Search an area or location for a person(s) or object(s).			
63	Obtain information from the general public or potential witnesses on suspicious activity in area or location.			
64	Apprehend, search, and detain a person(s) for suspicious activity.			
65	Restrain or subdue a person(s) using the appropriate level of force.			
66	Defuse a situation(s) using interpersonal skills.			
N	Guard and control vehicle and pedestrian traffic.			
67	Guard or patrol key access points or entrances to restricted areas (e.g., dismount points, roadblocks, or checkpoints).			
68	Search or inspect vehicles or persons for explosive devices or prohibited items.			
69	Direct or control vehicle or pedestrian traffic.			
70	Monitor vehicle or pedestrian traffic for suspicious activity.			
71	Direct or control the behavior of groups or crowds of non-combatants, under emergency and non-emergency conditions.			

Part 3 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

1. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

2. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

3. Are there work activities important to the job of first-term Soldiers in your MOS that were not reflected in the current questionnaire? If so, what?

<SPACE>

4. Please enter any additional feedback or comments on the questionnaire in the space below:

<SPACE>

Army Work Activities Questionnaire

19K M1 Abrams Tank Armor Crewman

Instructions

The purpose of this questionnaire is to find out about the work activities performed by *first-term Soldiers in your MOS*. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

This questionnaire consists of a series of work activities describing what first-term Soldiers in your MOS do, to whom or what it is done, and potentially for what purpose it is done. For example:

Operate radio communications equipment.

For each work activity, you will be asked to make three ratings.

The first involves rating each work activity in terms of its *importance to the job of first-term Soldiers in your MOS*. You will use the following scale to make this rating:

<i>Not Important</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>
1	2	3	4	5

The second involves rating each work activity in terms of *how difficult it is for first term Soldiers in your MOS to learn to perform the activity to standard through classroom training*. You will use the following scale to make this rating:

<i>Very Easy to Learn</i>	<i>Somewhat Easy to Learn</i>	<i>Neither Easy nor Difficult to Learn</i>	<i>Somewhat Difficult to Learn</i>	<i>Very Difficult to Learn</i>
1	2	3	4	5

The third involves rating each work activity in terms of *how serious the negative consequences would be for the Soldier's unit or the unit's mission if a first-term Soldier in your MOS failed to successfully perform the activity*. You will use the following scale to make this rating:

<i>Not Serious</i>	<i>Somewhat Serious</i>	<i>Serious</i>	<i>Very Serious</i>	<i>Extremely Serious</i>
1	2	3	4	5

You will complete this set of ratings twice. You will first rate all of the individual work activities. You will then rate the higher-level categories these work activities fall under.

Part 1 – Individual Work Activities

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Operate and maintain radio communications equipment.			
1	Install and configure radio communications equipment for use in tank.			
2	Operate radio communications equipment.			
3	Perform routine maintenance checks and services on radio communications equipment.			
4	Troubleshoot radio communications equipment.			
B	Operate and maintain tank computer and digital information systems.			
5	Install software and upload data on tank computer and digital information systems.			
6	Operate tank computer and digital information systems.			
7	Perform routine maintenance checks and services on tank computer and digital information systems.			
C	Drive tank.			
8	Prepare the tank driver's station for operation.			
9	Perform tank driver's operation checks and services.			
10	Drive tank.			
11	Troubleshoot tank malfunctions using driver's control panel and digital warning messages.			
D	Operate and maintain tank main gun.			
12	Prepare the tank loader's station for operation.			
13	Load and unload tank main gun.			
14	Perform routine maintenance and services on tank main gun.			
15	Troubleshoot tank main gun malfunctions and misfires.			
E	Operate and maintain tank-mounted machine guns.			
16	Mount and dismount machine guns from tank.			
17	Load and unload tank-mounted machine guns.			
18	Aim, track, and fire tank-mounted machine guns at targets.			
19	Perform routine maintenance checks and services on tank-mounted machine guns.			
20	Troubleshoot tank-mounted machine gun malfunctions and misfires.			
F	Recover and tow tank.			
21	Recover disabled tank in the field using available resources and equipment.			
22	Prepare and tow disabled tank using standard equipment and vehicles.			

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
F	Operate and maintain tank mounted mine clearing equipment.			
23	Perform routine maintenance checks and services on tank-mounted mine clearing equipment.			
24	Operate tank-mounted mine clearing equipment.			
G	Maintain and service non-weapons tank systems and equipment.			
25	Perform routine maintenance checks and services on tank automotive system.			
26	Perform routine maintenance checks on basic issue tank equipment, such as portable fire extinguishers.			
27	Decontaminate tank equipment using portable decontamination equipment.			
H	Inspect and stow tank gun ammunition.			
28	Inspect tank gun ammunition prior to stowing.			
29	Prepare and stow ammunition in tank.			
I	Handle and evacuate casualties.			
30	Evacuate a wounded crewman from a tank.			
31	Request a medical evacuation.			
J	Navigate in the field.			
32	Assemble and read maps.			
33	Guide tank movements for driver using hand signals and a flashlight.			

Part 2 – Work Activity Categories

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Operate and maintain radio communications equipment.			
1	Install and configure radio communications equipment for use in tank.			
2	Operate radio communications equipment.			
3	Perform routine maintenance checks and services on radio communications equipment.			
4	Troubleshoot radio communications equipment.			
B	Operate and maintain tank computer and digital information systems.			
5	Install software and upload data on tank computer and digital information systems.			
6	Operate tank computer and digital information systems.			
7	Perform routine maintenance checks and services on tank computer and digital information systems.			
C	Drive tank.			
8	Prepare the tank driver's station for operation.			
9	Perform tank driver's operation checks and services.			
10	Drive tank.			
11	Troubleshoot tank malfunctions using driver's control panel and digital warning messages.			
D	Operate and maintain tank main gun.			
12	Prepare the tank loader's station for operation.			
13	Load and unload tank main gun.			
14	Perform routine maintenance and services on tank main gun.			
15	Troubleshoot tank main gun malfunctions and misfires.			
E	Operate and maintain tank-mounted machine guns.			
16	Mount and dismount machine guns from tank.			
17	Load and unload tank-mounted machine guns.			
18	Aim, track, and fire tank-mounted machine guns at targets.			
19	Perform routine maintenance checks and services on tank-mounted machine guns.			
20	Troubleshoot tank-mounted machine gun malfunctions and misfires.			
F	Recover and tow tank.			
21	Recover tank in the field using available resources and equipment.			
22	Prepare and tow tank using standard equipment and vehicles.			

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
F	Operate and maintain tank mounted mine clearing equipment.			
23	Perform routine maintenance checks and services on tank-mounted mine clearing equipment.			
24	Operate tank-mounted mine clearing equipment.			
G	Maintain and service non-weapons tank systems and equipment.			
25	Perform routine maintenance checks and services on tank automotive system.			
26	Perform routine maintenance checks on basic issue tank equipment, such as portable fire extinguishers.			
27	Decontaminate tank equipment using portable decontamination equipment.			
H	Inspect and stow tank gun ammunition.			
28	Inspect tank gun ammunition prior to stowing.			
29	Prepare and stow ammunition in tank.			
I	Handle and evacuate casualties.			
30	Evacuate a wounded crewman from a tank.			
31	Request a medical evacuation.			
J	Navigate in the field.			
32	Assemble and read maps.			
33	Guide tank movements for driver using hand signals and a flashlight.			

Part 3 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

5. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

6. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

7. Are there work activities important to the job of first-term Soldiers in your MOS that were not reflected in the current questionnaire? If so, what?

<SPACE>

8. Please enter any additional feedback or comments on the questionnaire in the space below:

<SPACE>

Army Work Activities Questionnaire

25U Signal Support Systems Specialist

Instructions

The purpose of this questionnaire is to find out about the work activities performed by *first-term Soldiers in your MOS*. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

This questionnaire consists of a series of work activities describing what first-term Soldiers in your MOS do, to whom or what it is done, and potentially for what purpose it is done. For example:

Operate radio communications equipment.

For each work activity, you will be asked to make three ratings.

The first involves rating each work activity in terms of its *importance to the job of first-term Soldiers in your MOS*. You will use the following scale to make this rating:

<i>Not Important</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>
1	2	3	4	5

The second involves rating each work activity in terms of *how difficult it is for first term Soldiers in your MOS to learn to perform the activity to standard through classroom training*. You will use the following scale to make this rating:

<i>Very Easy to Learn</i>	<i>Somewhat Easy to Learn</i>	<i>Neither Easy nor Difficult to Learn</i>	<i>Somewhat Difficult to Learn</i>	<i>Very Difficult to Learn</i>
1	2	3	4	5

The third involves rating each work activity in terms of *how serious the negative consequences would be for the Soldier's unit or the unit's mission if a first-term Soldier in your MOS failed to successfully perform the activity*. You will use the following scale to make this rating:

<i>Not Serious</i>	<i>Somewhat Serious</i>	<i>Serious</i>	<i>Very Serious</i>	<i>Extremely Serious</i>
1	2	3	4	5

You will complete this set of ratings twice. You will first rate all of the individual work activities. You will then rate the higher-level categories these work activities fall under.

Part 1 – Individual Work Activities

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Install, maintain, and troubleshoot commercial computers and peripherals.			
1	Set-up and configure commercial desktop or laptop computers and peripherals such as printers.			
2	Install network hardware and software in commercial desktop or laptop computers.			
3	Perform scheduled maintenance and services on commercial desktop or laptop computers.			
4	Troubleshoot and repair commercial desktop or laptop computers to operation.			
B	Install, maintain, and troubleshoot secure data transmission equipment.			
5	Set-up and install secure data transmission equipment.			
6	Perform scheduled maintenance and services on secure data transmission equipment.			
7	Troubleshoot and repair secure data transmission equipment to operation.			
C	Install, maintain, and troubleshoot tactical computer networks and systems.			
8	Install tactical computer networks and systems such as the Force XXI Battle Command Brigade and Below (FBCB2).			
9	Perform scheduled maintenance and services on tactical computer networks and systems such as the Force XXI Battle Command Brigade and Below (FBCB2).			
10	Troubleshoot and repair tactical computer networks and systems such as the Force XXI Battle Command Brigade and Below (FBCB2) to operation.			
D	Install, maintain, and troubleshoot secure communications and tactical satellite systems.			
11	Set-up and install secure telephones.			
12	Troubleshoot and repair secure telephones to operation.			
13	Install secure radio equipment and mobile communications systems.			
14	Perform scheduled maintenance and services on secure radio equipment and mobile communications systems.			
15	Troubleshoot and repair secure radio equipment and mobile communications systems to operation.			
16	Install tactical satellite equipment.			
17	Perform scheduled maintenance and services on tactical satellite equipment.			
18	Troubleshoot and repair tactical satellite equipment to operation.			
19	Install, splice, and knot wire and cable.			

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
E	Install, maintain, and troubleshoot communication security (COMSEC) equipment.			
20	Set-up and install secure satellite equipment such as AN/VRC-49 and AN/VRC-92 at a designated field site to transmit messages between radio stations.			
21	Monitor secure satellite equipment at designated field site for correct operation.			
22	Operate secure satellite equipment at designated field site.			
23	Monitor and identify potential security threats to communication networks and systems.			
24	Set-up passwords and install communication security (COMSEC) equipment.			
25	Perform scheduled maintenance and services on communication security (COMSEC) equipment.			
26	Troubleshoot and repair communication security (COMSEC) equipment to operation.			
F	Provide instruction and technical support to users of computer and communications equipment.			
27	Obtain information on computer and communications equipment from users.			
28	Instruct users on the operation of computer and communications equipment.			
29	Provide technical support on computer and communications equipment to users.			
30	Understand technical operating, service or repair manuals for computer and communications equipment.			
G	Complete records and forms on computer and communications equipment.			
31	Complete maintenance records and forms on computer and communications equipment.			

Part 2 – Work Activity Categories

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Install, maintain, and troubleshoot commercial computers and peripherals.			
1	Set-up and configure commercial desktop or laptop computers and peripherals such as printers.			
2	Install network hardware and software in commercial desktop or laptop computers.			
3	Perform scheduled maintenance and services on commercial desktop or laptop computers.			
4	Troubleshoot and repair commercial desktop or laptop computers to operation.			
B	Install, maintain, and troubleshoot secure data transmission equipment.			
5	Set-up and install secure data transmission equipment.			
6	Perform scheduled maintenance and services on secure data transmission equipment.			
7	Troubleshoot and repair secure data transmission equipment to operation.			
C	Install, maintain, and troubleshoot tactical computer networks and systems.			
8	Install tactical computer networks and systems such as the Force XXI Battle Command Brigade and Below (FBCB2).			
9	Perform scheduled maintenance and services on tactical computer networks and systems such as the Force XXI Battle Command Brigade and Below (FBCB2).			
10	Troubleshoot and repair tactical computer networks and systems such as the Force XXI Battle Command Brigade and Below (FBCB2) to operation.			
D	Install, maintain, and troubleshoot secure communications and tactical satellite systems.			
11	Set-up and install secure telephones.			
12	Troubleshoot and repair secure telephones to operation.			
13	Install secure radio equipment and mobile communications systems.			
14	Perform scheduled maintenance and services on secure radio equipment and mobile communications systems.			
15	Troubleshoot and repair secure radio equipment and mobile communications systems to operation.			
16	Install tactical satellite equipment.			
17	Perform scheduled maintenance and services on tactical satellite equipment.			
18	Troubleshoot and repair tactical satellite equipment to operation.			
19	Install, splice, and knot wire and cable.			

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
E	Install, maintain, and troubleshoot communication security (COMSEC) equipment.			
20	Set-up and install secure satellite equipment such as AN/VRC-49 and AN/VRC-92 at a designated field site to transmit messages between radio stations.			
21	Monitor secure satellite equipment at designated field site for correct operation.			
22	Operate secure satellite equipment at designated field site.			
23	Monitor and identify potential security threats to communication networks and systems.			
24	Set-up passwords and install communication security (COMSEC) equipment.			
25	Perform scheduled maintenance and services on communication security (COMSEC) equipment.			
26	Troubleshoot and repair communication security (COMSEC) equipment to operation.			
F	Provide instruction and technical support to users of computer and communications equipment.			
27	Obtain information on computer and communications equipment from users.			
28	Instruct users on the operation of computer and communications equipment.			
29	Provide technical support on computer and communications equipment to users.			
30	Understand technical operating, service or repair manuals for computer and communications equipment.			
G	Complete records and forms on computer and communications equipment.			
31	Complete maintenance records and forms on computer and communications equipment.			

Part 3 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

9. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

10. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

11. Are there work activities important to the job of first-term Soldiers in your MOS that were not reflected in the current questionnaire? If so, what?

<SPACE>

12. Please enter any additional feedback or comments on the questionnaire in the space below:

<SPACE>

Army Work Activities Questionnaire

31B Military Police

Instructions

The purpose of this questionnaire is to find out about the work activities performed by *first-term Soldiers in your MOS*. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

This questionnaire consists of a series of work activities describing what first-term Soldiers in your MOS do, to whom or what it is done, and potentially for what purpose it is done. For example:

Operate radio communications equipment.

For each work activity, you will be asked to make three ratings.

The first involves rating each work activity in terms of its *importance to the job of first-term Soldiers in your MOS*. You will use the following scale to make this rating:

<i>Not Important</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>
1	2	3	4	5

The second involves rating each work activity in terms of *how difficult it is for first term Soldiers in your MOS to learn to perform the activity to standard through classroom training*. You will use the following scale to make this rating:

<i>Very Easy to Learn</i>	<i>Somewhat Easy to Learn</i>	<i>Neither Easy nor Difficult to Learn</i>	<i>Somewhat Difficult to Learn</i>	<i>Very Difficult to Learn</i>
1	2	3	4	5

The third involves rating each work activity in terms of *how serious the negative consequences would be for the Soldier's unit or the unit's mission if a first-term Soldier in your MOS failed to successfully perform the activity*. You will use the following scale to make this rating:

<i>Not Serious</i>	<i>Somewhat Serious</i>	<i>Serious</i>	<i>Very Serious</i>	<i>Extremely Serious</i>
1	2	3	4	5

You will complete this set of ratings twice. You will first rate all of the individual work activities. You will then rate the higher-level categories these work activities fall under.

Part 1 – Individual Work Activities

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Conduct law enforcement activities.			
1	Guard or patrol a designated area(s) or location(s).			
2	Search an area or location for an individual(s) or object(s).			
3	Obtain information from potential witnesses or the general public on suspicious activity in area or location.			
4	Respond to and investigate complaints or disturbances.			
5	Apprehend, search, and arrest a criminal suspect(s).			
6	Restrain or subdue a criminal suspect(s) using the appropriate level of force.			
7	Serve arrest, search or seizure warrants.			
8	Serve or issue summonses or subpoenas.			
9	Defuse a situation(s) using interpersonal skills.			
B	Control and enforce traffic laws.			
10	Guard or patrol entrances at key locations (e.g., dismount points, roadblocks, or checkpoints).			
11	Search or inspect vehicles for explosive devices or prohibited items.			
12	Direct or control vehicle or pedestrian traffic.			
13	Monitor vehicle or pedestrian traffic for suspicious activity.			
14	Issue citation or warning for violation of traffic laws.			
15	Respond to and investigate traffic violations or accidents.			
16	Direct or control groups or crowds of non-combatants, under emergency and non-emergency conditions.			
C	Guard and monitor detainees or prisoners.			
17	Guard or protect detainees or prisoners.			
18	Search detainees or prisoners for weapons or prohibited items.			
19	Restrain or subdue detainees or prisoners using the appropriate level of force.			
20	Monitor detainee or prisoner activity.			
21	Escort detainees or prisoners to a new location, inside or outside a detainment or corrections facility.			
22	Respond to emergency situations (e.g., fights, riots, escapes) in detainment or corrections facility.			
23	Guard or patrol area or premises in a detainment or corrections facility.			
24	Search or inspect area or premises in a detainment or corrections facility.			
25	Search or inspect incoming and outgoing materials for detainees or prisoners.			
D	Assist in crime scene investigations.			
26	Establish a perimeter for crime scene and control access.			
27	Guard or secure evidence at or from a crime scene.			
28	Gather or collect evidence at crime scene.			

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
29	Interview crime victims, witnesses, or suspects to obtain relevant information.			
E	Guard or patrol people, places, or objects as member of a security team.			
30	Guard or patrol a facility as member of a team.			
31	Guard or protect individual(s) as member of a team.			
32	Guard or patrol cargo as a member of a team.			
33	Guard or secure classified information or materials during transport as member of a team.			
F	Set-up and operate radio communications equipment.			
34	Operate radio communications equipment.			
35	Set-up a secure radio communications site.			
36	Identify and respond to an electronic attack and other security threats over a radio communications network.			
G	Prepare forms and reports.			
37	Prepare initial criminal incident reports.			
38	Prepare and maintain records and logs on detainees or prisoners.			
39	Prepare CBRN, spot, and situational reports.			
H	Drive wheeled vehicles.			
40	Drive armored wheeled vehicles (e.g., ASV) alone or in a convoy on a non-tactical mission.			
41	Drive armored wheeled vehicle (e.g., ASV) alone or in a convoy on a tactical mission.			
42	Follow traffic laws and regulations.			
43	Navigate from point to point using maps and navigational equipment (e.g., GPS).			

Part 2 – Work Activity Categories

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Conduct law enforcement activities.			
1	Guard or patrol a designated area(s) or location(s).			
2	Search an area or location for an individual(s) or object(s).			
3	Obtain information from potential witnesses or the general public on suspicious activity in area or location.			
4	Respond to and investigate complaints or disturbances.			
5	Apprehend, search, and arrest a criminal suspect(s).			
6	Restrain or subdue a criminal suspect(s) using the appropriate level of force.			
7	Serve arrest, search or seizure warrants.			
8	Serve or issue summonses or subpoenas.			
9	Defuse a situation(s) using interpersonal skills.			
B	Control and enforce traffic laws.			
10	Guard or patrol entrances at key locations (e.g., dismount points, roadblocks, or checkpoints).			
11	Search or inspect vehicles for explosive devices or prohibited items.			
12	Direct or control vehicle or pedestrian traffic.			
13	Monitor vehicle or pedestrian traffic for suspicious activity.			
14	Issue citation or warning for violation of traffic laws.			
15	Respond to and investigate traffic violations or accidents.			
16	Direct or control groups or crowds of non-combatants, under emergency and non-emergency conditions.			
C	Guard and monitor detainees or prisoners.			
17	Guard or protect detainees or prisoners.			
18	Search detainees or prisoners for weapons or prohibited items.			
19	Restrain or subdue detainees or prisoners using the appropriate level of force.			
20	Monitor detainee or prisoner activity.			
21	Escort detainees or prisoners to a new location, inside or outside a detainment or corrections facility.			
22	Respond to emergency situations (e.g., fights, riots, escapes) in detainment or corrections facility.			
23	Guard or patrol area or premises in a detainment or corrections facility.			
24	Search or inspect area or premises in a detainment or corrections facility.			
25	Search or inspect incoming and outgoing materials for detainees or prisoners.			
D	Assist in crime scene investigations.			
26	Establish a perimeter for crime scene and control access.			
27	Guard or secure evidence at or from a crime scene.			
28	Gather or collect evidence at crime scene.			
29	Interview crime victims, witnesses, or suspects to obtain relevant			

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
	information.			
E	Guard or patrol people, places, or objects as member of a security team.			
30	Guard or patrol a facility as member of a team.			
31	Guard or protect individual(s) as member of a team.			
32	Guard or patrol cargo as a member of a team.			
33	Guard or secure classified information or materials during transport as member of a team.			
F	Set-up and operate radio communications equipment.			
34	Operate radio communications equipment.			
35	Set-up a secure radio communications site.			
36	Identify and respond to an electronic attack and other security threats over a radio communications network.			
G	Prepare forms and reports.			
37	Prepare initial criminal incident reports.			
38	Prepare and maintain records and logs on detainees or prisoners.			
39	Prepare CBRN, spot, and situational reports.			
H	Drive wheeled vehicles.			
40	Drive armored wheeled vehicles (e.g., ASV) alone or in a convoy on a non-tactical mission.			
41	Drive armored wheeled vehicle (e.g., ASV) alone or in a convoy on a tactical mission.			
42	Follow traffic laws and regulations.			
43	Navigate from point to point using maps and navigational equipment (e.g., GPS).			

Part 3 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

13. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

14. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

15. Are there work activities important to the job of first-term Soldiers in your MOS that were not reflected in the current questionnaire? If so, what?

<SPACE>

16. Please enter any additional feedback or comments on the questionnaire in the space below:

<SPACE>

Army Work Activities Questionnaire

63B Wheeled Vehicle Mechanic

Instructions

The purpose of this questionnaire is to find out about the work activities performed by *first-term Soldiers in your MOS*. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

This questionnaire consists of a series of work activities describing what first-term Soldiers in your MOS do, to whom or what it is done, and potentially for what purpose it is done. For example:

Operate radio communications equipment.

For each work activity, you will be asked to make three ratings.

The first involves rating each work activity in terms of its *importance to the job of first-term Soldiers in your MOS*. You will use the following scale to make this rating:

<i>Not Important</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>
1	2	3	4	5

The second involves rating each work activity in terms of *how difficult it is for first term Soldiers in your MOS to learn to perform the activity to standard through classroom training*. You will use the following scale to make this rating:

<i>Very Easy to Learn</i>	<i>Somewhat Easy to Learn</i>	<i>Neither Easy nor Difficult to Learn</i>	<i>Somewhat Difficult to Learn</i>	<i>Very Difficult to Learn</i>
1	2	3	4	5

The third involves rating each work activity in terms of *how serious the negative consequences would be for the Soldier's unit or the unit's mission if a first-term Soldier in your MOS failed to successfully perform the activity*. You will use the following scale to make this rating:

<i>Not Serious</i>	<i>Somewhat Serious</i>	<i>Serious</i>	<i>Very Serious</i>	<i>Extremely Serious</i>
1	2	3	4	5

You will complete this set of ratings twice. You will first rate all of the individual work activities. You will then rate the higher-level categories these work activities fall under.

Part 1 – Individual Work Activities

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Perform scheduled maintenance checks and services on wheeled vehicle.			
1	Obtain service box and read orders for maintenance job.			
2	Perform routine inspection and checks of wheeled vehicle.			
3	Replace worn parts and fluids in wheeled vehicle.			
4	Drive or test wheeled vehicle after completing scheduled maintenance checks and services.			
B	Troubleshoot malfunctions in wheeled vehicle.			
5	Read and review wheeled vehicle maintenance and service records.			
6	Troubleshoot malfunctions in wheeled mechanical and electrical systems.			
7	Read and refer to technical documents and manuals.			
C	Repair wheeled vehicle.			
8	Correct or repair malfunctions in wheeled vehicle mechanical and electrical systems.			
9	Replace damaged or defective parts in wheeled vehicle mechanical and electrical systems.			
10	Drive or test wheeled vehicle after repair or replacement of parts.			
D	Maintain tools and test equipment.			
11	Clean and maintain tools and test equipment.			
12	Secure and account for tools and test equipment.			
13	Calibrate and service tools and test equipment.			
E	Perform administrative duties.			
14	Complete and maintain wheeled vehicle maintenance and service records.			
15	Prepare and submit forms to order replacement parts.			
F	Prepare work area and follow safety procedures.			
16	Prepare work area for wheeled vehicle maintenance and repair.			
17	Follow safety procedures when working on wheeled vehicle.			
18	Use protective clothing and special equipment when working under hazardous conditions.			

Part 2 – Work Activity Categories

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Perform scheduled maintenance checks and services on wheeled vehicle.			
1	Obtain service box and read orders for maintenance job.			
2	Perform routine inspection and checks of wheeled vehicle.			
3	Replace worn parts and fluids in wheeled vehicle.			
4	Drive or test wheeled vehicle after completing scheduled maintenance checks and services.			
B	Troubleshoot malfunctions in wheeled vehicle.			
5	Read and review wheeled vehicle maintenance and service records.			
6	Troubleshoot malfunctions in wheeled mechanical and electrical systems.			
7	Read and refer to technical documents and manuals.			
C	Repair wheeled vehicle.			
8	Correct or repair malfunctions in wheeled vehicle mechanical and electrical systems.			
9	Replace damaged or defective parts in wheeled vehicle mechanical and electrical systems.			
10	Drive or test wheeled vehicle after repair or replacement of parts.			
D	Maintain tools and test equipment.			
11	Clean and maintain tools and test equipment.			
12	Secure and account for tools and test equipment.			
13	Calibrate and service tools and test equipment.			
E	Perform administrative duties.			
14	Complete and maintain wheeled vehicle maintenance and service records.			
15	Prepare and submit forms to order replacement parts.			
F	Prepare work area and follow safety procedures.			
16	Prepare work area for wheeled vehicle maintenance and repair.			
17	Follow safety procedures when working on wheeled vehicle.			
18	Use protective clothing and special equipment when working under hazardous conditions.			

Part 3 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

17. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

18. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

19. Are there work activities important to the job of first-term Soldiers in your MOS that were not reflected in the current questionnaire? If so, what?

<SPACE>

20. Please enter any additional feedback or comments on the questionnaire in the space below:

<SPACE>

Army Work Activities Questionnaire

88M Motor Transport Operator

Instructions

The purpose of this questionnaire is to find out about the work activities performed by *first-term Soldiers in your MOS*. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

This questionnaire consists of a series of work activities describing what first-term Soldiers in your MOS do, to whom or what it is done, and potentially for what purpose it is done. For example:

Operate radio communications equipment.

For each work activity, you will be asked to make three ratings.

The first involves rating each work activity in terms of its *importance to the job of first-term Soldiers in your MOS*. You will use the following scale to make this rating:

<i>Not Important</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>
1	2	3	4	5

The second involves rating each work activity in terms of *how difficult it is for first term Soldiers in your MOS to learn to perform the activity to standard through classroom training*. You will use the following scale to make this rating:

<i>Very Easy to Learn</i>	<i>Somewhat Easy to Learn</i>	<i>Neither Easy nor Difficult to Learn</i>	<i>Somewhat Difficult to Learn</i>	<i>Very Difficult to Learn</i>
1	2	3	4	5

The third involves rating each work activity in terms of *how serious the negative consequences would be for the Soldier's unit or the unit's mission if a first-term Soldier in your MOS failed to successfully perform the activity*. You will use the following scale to make this rating:

<i>Not Serious</i>	<i>Somewhat Serious</i>	<i>Serious</i>	<i>Very Serious</i>	<i>Extremely Serious</i>
1	2	3	4	5

You will complete this set of ratings twice. You will first rate all of the individual work activities. You will then rate the higher-level categories these work activities fall under.

Part 1 – Individual Work Activities

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Drive wheeled vehicle.			
1	Drive wheeled vehicle alone or in a convoy on a non-tactical mission.			
2	Drive wheeled vehicle alone or in a convoy on a tactical mission.			
3	Drive wheeled vehicle with trailer or semitrailer.			
4	Drive wheeled vehicle on adverse roads and terrain.			
5	Drive wheeled vehicle under adverse climatic conditions.			
6	Drive wheeled vehicle at day or night under severely degraded visual conditions.			
7	Couple and uncouple trailers or semitrailers to wheeled vehicle.			
8	Back up wheeled vehicle with trailer or semitrailer.			
9	Follow traffic laws and regulations.			
B	Maintain and service wheeled vehicle.			
10	Prepare wheeled vehicle for operations.			
11	Inspect wheeled vehicle before, during, and after operations.			
12	Perform routine maintenance checks and services on wheeled vehicle.			
13	Understand wheeled vehicle service or repair manuals.			
C	Transport personnel and cargo.			
14	Load or unload passengers for transport in a wheeled vehicle.			
15	Operate heavy equipment to load or unload cargo for transport.			
16	Manually load or unload cargo for transport in a wheeled vehicle.			
17	Secure and tiedown cargo before transport in wheeled vehicle.			
18	Inspect tiedowns and security of cargo before and during transport in wheeled vehicle.			
D	Recover and tow wheeled vehicle.			
19	Recover disabled vehicle in the field using available resources and equipment.			
20	Prepare and tow disabled vehicle using standard equipment and vehicles.			
E	Complete forms and reports.			
21	Complete accident forms.			
22	Complete driver trip records.			
F	Navigate and steer wheeled vehicle movements.			
23	Read maps.			
24	Operate vehicle navigational and movement tracking systems.			
25	Steer the wheeled vehicle movements of other drivers using hand signals and a flashlight.			

Part 2 – Work Activity Categories

No.	Work Activity	Importance (1-5)	Training Difficulty (1-5)	Critical (1-5)
A	Drive wheeled vehicle.			
1	Drive wheeled vehicle alone or in a convoy on a non-tactical mission.			
2	Drive wheeled vehicle alone or in a convoy on a tactical mission.			
3	Drive wheeled vehicle with trailer or semitrailer.			
4	Drive wheeled vehicle on adverse roads and terrain.			
5	Drive wheeled vehicle under adverse climatic conditions.			
6	Drive wheeled vehicle at day or night under severely degraded visual conditions.			
7	Couple and uncouple trailers or semitrailers to wheeled vehicle.			
8	Back up wheeled vehicle with trailer or semitrailer.			
9	Follow traffic laws and regulations.			
B	Maintain and service wheeled vehicle.			
10	Prepare wheeled vehicle for operations.			
11	Inspect wheeled vehicle before, during, and after operations.			
12	Perform routine maintenance checks and services on wheeled vehicle.			
13	Understand wheeled vehicle service or repair manuals.			
C	Transport personnel and cargo.			
14	Load or unload passengers for transport in a wheeled vehicle.			
15	Operate heavy equipment to load or unload cargo for transport.			
16	Manually load or unload cargo for transport in a wheeled vehicle.			
17	Secure and tiedown cargo before transport in wheeled vehicle.			
18	Inspect tiedowns and security of cargo before and during transport in wheeled vehicle.			
D	Recover and tow wheeled vehicle.			
19	Recover disabled vehicle in the field using available resources and equipment.			
20	Prepare and tow disabled vehicle using standard equipment and vehicles.			
E	Complete forms and reports.			
21	Complete accident forms.			
22	Complete driver trip records.			
F	Navigate and steer wheeled vehicle movements.			
23	Read maps.			
24	Operate vehicle navigational and movement tracking systems.			
25	Steer the wheeled vehicle movements of other drivers using hand signals and a flashlight.			

Part 3 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

21. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

22. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

23. Are there work activities important to the job of first-term Soldiers in your MOS that were not reflected in the current questionnaire? If so, what?

<SPACE>

24. Please enter any additional feedback or comments on the questionnaire in the space below:

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Appendix D

Work Context Questionnaire

Army Work Context Questionnaire

Instructions

The purpose of this questionnaire is to find out about the kinds of conditions under which a *first-term Soldier in your MOS* must perform. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

This questionnaire consists of a series of statements describing different conditions under which a first-term Soldier in your MOS must perform. For example:

Exposed, or potentially exposed, to manufactured (i.e., man-made) hazards or contaminants.

For each statement, you will be asked to make two ratings.

The first rating asks you to rate *how characteristic the statement is for first-term Soldiers in your MOS in a non-combat zone field assignment*. When making this rating, use the following scale:

Not at all characteristic	Slightly characteristic	Somewhat characteristic	Moderately characteristic	Very characteristic
1	2	3	4	5

Please record your rating directly in the space marked, “**Non-Combat.**”

The second rating asks you to rate *how characteristic the statement is for first-term Soldiers in your MOS in a combat zone field assignment (e.g., in Iraq or Afghanistan)*. When making this rating, use the following scale:

Not at all characteristic	Slightly characteristic	Somewhat characteristic	Moderately characteristic	Very characteristic
1	2	3	4	5

Please record your rating directly in the space marked, “**Combat.**”

Army Work Context Questionnaire – Rating Sheet

Part 1 – Work Context

First-term Soldiers in my MOS are...

#	Item	Non-Combat (1-5)	Combat (1-5)
1	Exposed, or potentially exposed, to manufactured (i.e., man-made) hazards or contaminants.		
2	Exposed, or potentially exposed, to natural environmental hazards.		
3	Exposed, or potentially exposed, to diseases or infection when performing their work.		
4	Required to operate, use, or handle hazardous equipment or materials.		
5	Required to work indoors or in an environmentally controlled environment.		
6	Required to work outdoors, exposed to all weather conditions.		
7	Required to work in enclosed or cramped spaces.		
8	Exposed to sounds and noise levels that are distracting and uncomfortable.		
9	Exposed to extreme temperatures (hot or cold).		
10	Required to work at night or under inadequate lighting conditions.		
11	Exposed to significant levels of physical or mental discomfort, stress, or strain.		
12	Required to perform their work while wearing or carrying heavy equipment, supplies, or materials.		
13	Required to wear specialized protective or safety equipment that can restrict or constrain their performance.		
14	Required to work with limited, inadequate, or defective equipment, supplies, or materials.		
15	Required to work long hours or take on additional duties due to limited or inadequate personnel.		
16	Required to perform their duties with limited or inadequate information or instructions.		
17	Required to work through frequent or unscheduled interruptions that make it hard to complete their work on time.		
18	Required to respond to frequent crises or emergencies.		
19	Afforded the freedom to determine the timing and scheduling of their work.		

20	Afforded the freedom to determine which methods and procedures are used to complete their work.		
21	Required to work at a pace or speed determined by equipment or technology.		
22	Required to make decisions that affect, or could affect, others.		
23	Required to perform duties of long or extended duration.		
24	Required to work long or extended hours with little to no sleep.		
25	Afforded limited rest or recovery time between stressful or demanding tasks.		
26	Required to plan or perform under significant time pressure.		
27	Required to be very precise and highly accurate when completing their tasks.		
28	Required to perform under circumstances of conflicting or ambiguous directions, orders, or priorities.		
29	Required to work under minimal or limited supervision.		
30	Required to perform duties for which they received minimal or limited training.		
31	Required to perform non-job specific duties or to complete tasks outside of their job.		
32	Required to depend heavily on technology or equipment to complete their tasks.		
33	Required to perform continuous, repetitive physical or mental tasks.		
34	Required to interact or deal with non-hostile host country nationals.		
35	Required to interact or deal with hostile but non-violent host country nationals or groups.		
36	Required to deal with violent or physically aggressive host country nationals or groups.		
37	Required to interact or work with non-Army personnel.		
38	Required to perform work that is highly visible to others and for which others can observe what they are doing.		
39	Required to interact or work with challenging and difficult coworkers.		
40	Required to work closely with or depend heavily on others to complete their own duties.		
41	Required to perform their work largely on their own, with little assistance from others.		
42	Required to interact and work with others at a distance (e.g., through e-mail or other forms of electronic communication).		
43	Required to work as a member of a team consisting of individuals outside of the Soldier's unit or the Army.		
44	Required to coordinate or lead others for whom the Soldier has no direct authority.		

#	Item	Non- Combat (1-5)	Combat (1-5)
45	Required to persuade or influence others for whom the Soldier has no direct authority.		
46	Required to be responsible for the health and safety of non-Army personnel.		

Army Work Context Questionnaire

Part 2 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

25. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

26. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

27. Are there conditions critical to your MOS under which first-term Soldiers must perform that were not reflected in the current questionnaire? If so, what?

<SPACE>

28. Please enter any other feedback or comments on the questionnaire in the space below:

<SPACE>

Appendix E
Worker-Oriented Questionnaires

Army Abilities Questionnaire

Instructions

The purpose of this questionnaire is to find out what *abilities are most important to the work of first-term Soldiers in your MOS*. Abilities are enduring attributes of a person that influence how well they perform their work. The Army offers many different MOS; your answers will let us know the abilities that are most descriptive of yours. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

Rate each ability in terms of its *importance to the work of first-term Soldiers in your MOS*. You will use the following scale to make this rating:

1	2	3	4	5
<i>Not Important</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>

When completing this questionnaire, it is important that you consider how well each ability describes the job of *first-term* Soldiers in your MOS, *not*, the job of NCOs in your MOS.

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Part 1 - Abilities

First-term Soldiers in my MOS must be able to...

#	Ability	Importance (1-5)
1	Read and understand written documents and communicate with others in writing.	
2	Listen to and understand what others are saying and speak effectively to convey information to others.	
3	Come up with unusual or creative ideas about a given topic or generate multiple solutions to a problem.	
4	Tell when something is wrong or is likely to go wrong.	
5	Use logic and reasoning to evaluate ideas or the strengths and weaknesses of potential solutions to problems.	
6	Find ways or use different ways to structure, classify, or group multiple pieces of information into a meaningful order or pattern.	
7	Use mathematics to solve problems.	
8	Remember and recall information from memory when needed (e.g., words, numbers, pictures, and procedures).	
9	Know how to quickly find information and make sense of the information when found.	
10	Quickly and accurately compare similarities and differences among objects or stimuli to identify or detect a meaningful pattern (e.g., a figure, object, word, or sound).	
11	Know their location in relation to the environment or know where other objects are in relation to themselves.	
12	Imagine how something will look after it is moved around or when its parts are moved or rearranged.	
13	Concentrate on a task over a period of time without being distracted.	
14	Perform multiple activities simultaneously or shift back and forth between two or more sources of information at once.	
15	Learn new skills or how to perform an activity on their own, either by figuring it out themselves or by observing others.	
16	Keep their hand and arm steady while moving arm or while holding arm and hand in one position.	
17	Move fingers, hands, or hands together with arms to grasp, manipulate, or assemble objects.	
18	Use fingers, hands, feet, or limbs to operate the controls of a machine or piece of equipment to adjust its positioning, speed, or direction.	
19	Make fast, simple, repeated movements (with finger, hand, foot, or limbs) in quick response to a signal (e.g., sound, light, picture) when it appears.	

CONTINUED ON NEXT PAGE →

#	Ability	Importance (1-5)
20	Use muscles to lift, push, pull, carry, or throw objects or to propel oneself (e.g., jump or sprint).	
21	Exert themselves physically over long periods of time without getting winded or out of breath (e.g., from running).	
22	Bend, stretch, twist, or reach out with their body, arms, or legs (i.e., be flexible).	
23	Coordinate the movement of arms, legs, and torso together while stationary or when whole body is in motion.	
24	Keep or regain their balance or stay upright when in an unstable position.	
25	See details accurately (e.g., of an object) at close range or at a distance.	
26	Match or detect differences between colors, including shades of color and brightness.	
27	See objects or movement of objects to their side when the eyes are looking ahead (i.e., peripheral vision).	
28	Judge which of several objects is closer or farther away from them, or judge the distance between them and an object.	
29	Hear sounds accurately and tell the differences between sounds that vary in pitch and loudness.	
30	Focus attention on a single sound and tell from which direction it originated in the presence of other distracting sounds.	

Part 2 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

29. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

30. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

31. Are there abilities required of first-term Soldiers in your MOS that were not reflected in the questionnaire? If so, what?

<SPACE>

32. Please enter any other feedback or comments on the questionnaire in the space below:

<SPACE>

Army Work Styles Questionnaire

Instructions

The purpose of this questionnaire is to find out about the types of *work styles required of first-term Soldiers in your MOS*. Work styles are personal characteristics that can affect how well someone performs a job. The Army offers many different MOS; your answers will let us know the work styles that are most and least important to yours. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

Rate each work style in terms of its *importance to the job of first-term Soldiers in your MOS*. You will use the following scale to make this rating:

1	2	3	4	5
<i>Not Important</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>

When completing this questionnaire, it is important that you consider how well each work style describes the job of *first-term* Soldiers in your MOS, *not*, the job of NCOs in your MOS.

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Part 1 – Work Styles

First-term Soldiers in my MOS perform work that requires...

#	Work Style	Importance (1-5)
1	Showing a cooperative and friendly attitude towards others they dislike or disagree with.	
2	Being open to change (positive or negative) and a lot of variety.	
3	Leading, taking charge, and giving direction.	
4	Accomplishing tasks alone, with little supervision or help from others.	
5	Setting challenging goals and working continuously to attain them.	
6	Consistently meeting obligations and completing duties on time.	
7	Dealing effectively with high-stress situations and accepting frequent criticism.	
8	Much creativity and original thinking to perform successfully.	
9	Maintaining composure and keeping emotions and behavior in check even in very difficult circumstances.	
10	Being sensitive to others' needs and feelings and being understanding.	
11	High levels of energy and stamina to perform successfully.	
12	Working closely with others (instead of alone) to get tasks completed.	
13	Being thorough and paying close attention to details.	
14	Performing tasks that take a long time to "get right" and overcoming several obstacles along the way.	
15	Taking on new or additional responsibilities that may fall outside of their job duties.	
16	Interacting with people of different cultures and backgrounds, and appreciating differences in their values, opinions, and beliefs.	
17	Being organized and efficient.	
18	Thinking through things logically.	
19	Following rules, procedures, and protocols, even when those requirements are personally inconvenient.	
20	Being decisive and taking immediate action in response to the situation.	

Part 2 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

33. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

34. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

35. Are there work styles required of first-term Soldiers in your MOS that were not reflected in the current questionnaire? If so, what?

<SPACE>

36. Please enter any other feedback or comments on the questionnaire in the space below:

<SPACE>

Army Work Interests Questionnaire

Instructions

The purpose of this survey is to find out about the *work interests supported by the kinds of work performed by first-term Soldiers in your MOS*. Work interests are preferences for certain kinds of work that can influence an individual's satisfaction with their job. The Army offers many different MOS; your answers will let us know the work styles that are most and least important to yours. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

Rate each work interest in terms of its *importance to the job of first-term Soldiers in your MOS*. You will use the following scale to make this rating:

1	2	3	4	5
<i>Not Important</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>

When completing this questionnaire, it is important that you consider how well each work interest describes the job of *first-term Soldiers* in your MOS, *not*, the job of NCOs in your MOS.

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Part 1 – Work Interests

First-term Soldiers in my MOS perform must like...

#	Work Interest	Importance (1-5)
1	Communicating with others (verbally or in writing) inside or outside their organization.	
2	Protecting others.	
3	Assisting and caring for others.	
4	Selling and influencing others.	
5	Resolving conflicts and negotiating with others.	
6	Performing for or working directly with the public.	
7	Training and teaching others.	
8	Entering, transcribing, or recording data or information in written or electronic form.	
9	Processing or tabulating data or compiling information (visual, audio, verbal, or written) and verifying its accuracy or completeness.	
10	Translating or explaining what data or information (visual, audio, verbal, or written) means to others.	
11	Analyzing data or interpreting information (visual, audio, verbal, or written).	
12	Observing or collecting data or information from multiple sources or media (visual, audio, print, electronic).	
13	Identifying objects, actions, and events.	
14	Monitoring processes, materials, or surroundings.	
15	Inspecting equipment, structures, or materials for problems or defects.	
16	Estimating the quantifiable characteristics of products, events, or information.	
17	Judging the quality of objects, services, or people.	
18	Evaluating information to determine compliance with standards.	
19	Scheduling and coordinating events, programs, or activities.	
20	Drafting or laying out specifications for technical devices, parts, or equipment.	
21	Performing physical activities, such as running, walking, climbing, lifting, or balancing.	
22	Handling and moving objects or materials.	
23	Shooting, firing, and operating weapons or weapon systems (small arms, missile systems, and other munitions).	
24	Working with computers or computer networks.	
25	Driving or operating vehicles or other mechanized equipment.	
26	Repairing and maintaining mechanical equipment.	
27	Repairing and maintaining electronic or electrical equipment.	
28	Constructing buildings, bridges, walls, or structures.	
29	Performing administrative activities, such as handling paperwork and completing forms.	
30	Monitoring and controlling resources.	

Part 2 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

37. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

38. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

39. Are there work interests supported by the kinds of work performed by first-term Soldiers in your MOS that were not reflected in the current questionnaire? If so, what?

<SPACE>

40. Please enter any other feedback or comments on the questionnaire in the space below:

<SPACE>

Army Work Values Questionnaire

Instructions

The purpose of this questionnaire is to find out about the *work values supported by the kinds of work performed by first-term Soldiers in your MOS*. Work values are personal characteristics that can influence how satisfied an individual is in their job. The Army offers many different MOS; your answers will let us know the work values that are most and least important to yours. As you complete this questionnaire, consider the typical first-term Soldier in your MOS who is at Skill Level 1 (SL1) and who has completed at least one year of duty in a typical unit assignment and position and at least one series of Green-Amber-Red training cycles and unit operational requirements.

Rate each work value in terms of its *importance to the job of first-term Soldiers in your MOS*. You will use the following scale to make this rating:

1	2	3	4	5
<i>Not Important</i>	<i>Somewhat Important</i>	<i>Important</i>	<i>Very Important</i>	<i>Extremely Important</i>

When completing this questionnaire, it is important that you consider how well each work value describes the job of *first-term* Soldiers in your MOS, *not*, the job of NCOs in your MOS.

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Part 1 – Work Values

First-term Soldiers in my MOS...

#	Item	Importance (1-5)
1	Do work that most people admire and respect	
2	Have opportunities for advancement	
3	Plan their work with little supervision	
4	Have supervisors who provide a lot of support and guidance	
5	Have the freedom to pursue their non-work interests after hours	
6	Work in a comfortable and relaxed environment	
7	Get a feeling of accomplishment	
8	Do work that makes a valuable contribution to society	
9	Do their work alone	
10	Help others	
11	Have clear-cut duties and responsibilities	
12	Have something different to do every day	
13	Have opportunities to lead others	
14	Get feedback about my performance	
15	Travel and often be far from home	
16	Have the opportunity to improve their physical fitness	
17	Do something that makes use of their abilities	
18	Try out their own ideas	
19	Receive recognition for what they do	
20	Develop friendships with their co-workers	
21	Always have enough work to keep themselves busy	
22	Have a flexible work schedule	
23	Learn new skills	
24	Establish roots in a community by not having to move frequently	
25	Feel valued by their organization	
26	Gain personal discipline and maturity	
27	Make decisions that affect the work of others	
28	Work closely with others	
29	Solve difficult and complex problems	
30	Do work that is high in prestige and status	

Part 2 – Feedback

Please take a moment to reflect back on the questionnaire you completed and answer the following questions:

41. How would you rate the questionnaire on the following:

a. Ease of use:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

b. Instructions:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

c. Clarity of the statements you were asked to rate:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

d. Relevance to your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

e. Usefulness for describing the requirements of your MOS:

Very Bad	Bad	Neither Bad Nor Good	Good	Very Good
1	2	3	4	5

42. If you rated the questionnaire a 3 or below (“Neither Bad Nor Good” to “Very Bad”) on any of the above questions, please explain.

<SPACE>

43. Are there work values supported by the kinds of work performed by first-term Soldiers in your MOS that were not reflected in the current questionnaire? If so, what?

<SPACE>

44. Please enter any other feedback or comments on the questionnaire in the space below:

<SPACE>

Appendix F

Cross-Job Work Activity Descriptors and Definitions

Major Duty	Definition
1 Protect against NBC hazards	Uses protective clothing, masks, and decontamination equipment to protect self, others, equipment, and supplies from nuclear, biological, and chemical (NBC) hazards. Detects and monitors potential hazards using NBC detection equipment.
2 Handle demolitions or mines	Stores, places, charges, discharges, and disarms explosives, demolition devices, or mines.
3 Engage in hand-to-hand combat	Uses offensive and defensive maneuvers to combat and protect self and others from hostile individuals.
4 Inspect and maintain weapons	Checks, disassembles, assembles, cleans, lubricates, and adjusts weapons, including pistols, rifles, machine guns, hand grenades, and breechblocks.
5 Fire direct fire weapons	Aims, tracks, and fires individual weapons (e.g., rifles, pistols, machine guns, hand grenades) at designated targets. Prepares and loads weapon. Clears and unloads weapon. Arms and throws hand grenades.
6 Troubleshoot and repair weapons	Finds the cause of malfunctions in weapons using technical manuals, tools, and test equipment. After the cause of a problem in a weapon has been found, fixes it using the appropriate tools and necessary replacement parts by following directions in the weapon's technical manual.
7 Navigate from point to point	Reads and interprets maps, other navigational devices, and equipment (e.g., GPS) to locate position of self and others. Determines grid coordinates and directions. Moves from point to point in response to terrain features (e.g., or cover or concealment) battle conditions, and mission, with or without the aid of maps and other navigational equipment.
8 Maintain personal and operational security	Selects, prepares, and occupies individual tactical positions (e.g., battle positions, overwatch positions, observations posts), camouflages self and equipment, and observes security procedures.
9 Provide emergency first aid	Provide emergency first aid to individuals (e.g., CPR, put on field dressing, prevent shock).
10 Scout and identify targets	With or without optical devices and other equipment (e.g., night sights, weapon sights, binoculars), scouts and locates possible targets and their position(s). Identifies target's type (e.g., troops, tanks, aircraft) and intent (e.g., hostile or non-hostile).
11 Fire heavy direct fire weapons	Aims, tracks, and fires heavy direct fire weapon (e.g., tank main guns, TOW missile) at targets. Positions and loads weapons for firing. Unloads or extracts unused rounds or misfires.
12 Fire indirect fire weapons	Aims, tracks, and fires indirect weapon (e.g., field artillery, heavy mortars) by adjusting azimuth and elevation controls to hit designated targets. Positions and loads weapon for firing. Unloads or extracts unused rounds or misfires.
13 Drive track vehicles	Drives track vehicles (e.g., tank, APC, BFV, etc.) in response to mission, terrain, and traffic controls.
14 Install and maintain electronic equipment	Installs and connects electronic, communications, and satellite-based equipment (e.g., GPS, radios, antennas, satellite telephones, radar, missile and tank ballistics computer systems). Inspects and monitors equipment for operation. Conducts scheduled services to maintain equipment. (Does not include personal computers and computer networks.)

	Major Duty	Definition
15	Troubleshoot and repair electronic equipment	Troubleshoots electronic, communications, and satellite-based equipment (e.g., GPS, radios, antennas, radar, missile and tank ballistics computer systems) to diagnose problems and malfunctions using specialized test equipment and manuals. Repairs equipment with the appropriate tools (e.g., test sets, screwdrivers, pliers, soldering guns) and necessary replacement parts by following directions in the equipment's technical manual. (Does not include personal computers and computer networks.)
16	Install and maintain electrical and power transmission systems	Installs and connects electrical and power transmission systems (e.g., electrical wiring, power cables, communications wiring). Lays, splices, and knots wires and cables using the appropriate tools (e.g., wire cutters). Inspects and monitors systems for operation. Conducts scheduled services to maintain systems.
17	Troubleshoot and repair electrical and power transmission systems	Measures and tests electrical and power transmission system components (e.g., generators, wiring harnesses, switches, relays, circuit breakers, wires, cables) to detect and diagnose problems and malfunctions using specialized test equipment and manuals. Repairs system components with the appropriate tools (e.g., wire strippers, pliers, soldering irons) and necessary replacement parts by following directions in the equipment's technical manual.
18	Install and maintain personal computers and peripheral equipment	Connects personal computers and peripherals, installs software, and connects to networks. Monitors computers and peripherals. Conducts scheduled services and upgrades to maintain computers and peripherals. (Does not include computer networks.)
19	Install and maintain computer networks	Installs and configures network hardware and software. Monitors network use and performance. Conducts scheduled services and upgrades to maintain network. (Does not include personal computers.)
20	Troubleshoot and repair personal computers and computer networks	Troubleshoots personal computer and network components (e.g., hard drive, monitors, keyboard, network router, network cables-wiring) to detect and diagnose problems and malfunctions using specialized test equipment and manuals. Repairs computer or network components with the appropriate tools (e.g., pliers, screwdrivers, wrenches) and necessary replacement parts by following directions in the equipment's technical manual.
21	Operate electronic equipment	Sets and adjusts the controls to operate electronic, communications, and satellite-based equipment (e.g., GPS, radios, antennas, satellite telephones, radar, missile ballistics controls), including tactical command and control systems (e.g., Force XXI Battle Command, Brigade-and-Below [FBCB2]).
22	Operate personal computers and networks	Operates and works with personal computers and networks to create and edit documents and presentations, store and enter data into databases, or to search for and process information. (Does not include programming).
23	Record and document audiovisual information	Records and documents visual and sound information for intelligence analysis, training, or documentation using audiovisual equipment (e.g., audio recorders, cameras, videotape, digital video).
24	Send and receive radio messages	Uses standardized radio codes and procedures to transmit and receive messages and other information.
25	Collect and decode electronic signals	Collects electronic signals and communications. Uses coding systems and rules to decipher and interpret coded information.

	Major Duty	Definition
26	Analyze electronic signals	Analyzes electronic signals to detect threat transmitters and electronic countermeasures.
27	Provide data processing and programming support	Analyzes data processing needs. Selects or prepares, edits, tests, and runs computer programs. Documents process and results.
28	Produce maps, overlays, or range cards	Uses drafting, graphics, and related techniques to draw and revise maps of terrain, including locations of buildings and other objects, targets, avenues of approach, and maneuver areas from personal observation or available materials (e.g., aerial photographs).
29	Provide technical guidance and advice on the installation, maintenance, and use of equipment	Explains and demonstrates to Army and non-Army personnel at all levels how to install, maintain, and use equipment. Answers technical questions. Provides expert advice to others on issues related to the installation, maintenance, and use of equipment.
30	Translate foreign languages	Translates written or spoken foreign language communications.
31	Analyze intelligence data	Determines importance and reliability of information. Uses information to determine identity, capabilities, disposition, and movement of non-U.S. forces and personnel.
32	Control individuals and crowds	Performs guard duty, including challenge and password. Apprehends and searches suspected criminals, detainees, or prisoners. Guards and escorts detainees or prisoners. Participates in riot control.
33	Collect information from and on individuals and groups	Collects and gathers information from and on individuals and groups using a variety of techniques (e.g., interviews, focus groups, observations).
34	Inspect and maintain mechanical equipment	Inspects and monitors mechanical equipment (e.g., vehicles, trailers, generators, construction equipment). Conducts scheduled services to maintain equipment.
35	Troubleshoot and repair mechanical equipment	Troubleshoots mechanical system components (e.g., engines, transmissions, brakes, hydraulics, refrigeration systems) to diagnose problems and malfunctions using specialized test equipment and manuals. Repairs equipment using the appropriate tools (e.g., wrenches, screwdrivers, gauges, hammers, soldering equipment) and necessary replacement parts by following directions in the equipment manual.
36	Operate gas and electric powered equipment	Operates gas and electric powered equipment (e.g., electric generators, air compressors, smoke generators, quarry machines, mobile washing machines, water pumps) to produce power or process materials.
37	Prepare and process forms	Follows standardized procedures to prepare or complete forms and documents (e.g., personnel records, legal briefs, requisition requests, inspection records). Obtains required authorizations, as needed. Monitors and reviews forms for completeness.
38	Maintain records and files	Collects, sorts, indexes, files, and retrieves records and files (e.g., medical records, training rosters, personnel statistics, supply inventories, etc.).
39	Write documents and correspondence	Prepares and writes letters, reports, and memos. Proofreads and edits documents prior to distribution.
40	Monitor and control financial resources	Monitor and controls the expenditure of financial resources. Maintains and reviews accounting records. Disperses and collects money and money orders.

Major Duty	Definition
41 Load and unload supplies	Builds or assembles platforms, cushions, and riggings for supplies and equipment to protect from damage during transport. Loads and lashes materials onto transport vehicles (land, sea, or air) to secure and protect from damage or loss during shipment. Unpacks and unloads supplies after transport to designated location.
42 Drive wheeled vehicles	Drives wheeled vehicles over roads and cross-country in response to mission, terrain, and traffic regulations.
43 Drive water craft	Drives water craft (e.g., boats, rafts) in response to mission requirements and nautical regulations.
44 Inspect, store, and issue supplies	Inspects supplies and reviews paperwork upon receipt. Sorts and stores supplies. Issues or ships supplies to authorized personnel or units.
45 Order supplies and equipment	Determines supply and equipment needs or evaluates requests. Prepares and submits orders and requisitions for needed supplies and equipment.
46 Manage and control traffic	Manages and coordinates the departing, en route, arriving, and holding of traffic (land, air, or sea) by monitoring equipment, communicating with vehicles and other traffic control units.
47 Operate hand-operated power excavating equipment	Uses hand-operated power excavating equipment (e.g., air hammers and drills, paving breakers, grinders, backfill tampers) to build concrete, stone, or other structures.
48 Operate heavy equipment	Operates heavy equipment (e.g., fork lifts, cranes, back-hoes, and graders) to load, unload, or move other heavy equipment, supplies, construction materials (e.g., culvert pipe, building and bridge parts) or terrain (e.g., earth, rocks, trees, etc.).
49 Install, maintain, and repair plastic and fiberglass	Installs plastic or fiberglass parts and structures. Fixes plastic or fiberglass parts and structures by cutting, sawing, drilling, sanding, filling, gluing, and painting.
50 Repair metal structures or parts	Fixes metal structures or parts by bending, cutting, drilling, welding, hammering, grinding, soldering, and painting.
51 Construct metal or steel structures	Erects bridges, communication antennas, and other steel structures. May require the assistance of others and use of heavy equipment.
52 Install, maintain, and repair pipe assemblies	Installs, connects, and tests pipe assemblies and fixtures (e.g., plumbing, POL pipelines and pumps). Repairs pipe assemblies.
53 Construct wooden buildings and structures	Measures, saws, nails or planes to frame, sheathe, and roof buildings, or erects trestles, bridges, and piers from wood.
54 Construct masonry buildings and structures	Measures, lays brick or concrete blocks, or builds forms and pours concrete to construct walls, columns, field fortifications, and other concrete or masonry structures.
55 Produce technical drawings and illustrations	Uses drafting equipment or other media (e.g., pen, pencil, paint) to make technical drawings and blueprints. (Does not include maps, range cards, or other field expedient drawings.)
56 Prepare food and beverages	Prepares food and beverages according to recipes and meal plans (measure, mix, bake). Inspects fresh food and staples for freshness. Cleans equipment and work area.

	Major Duty	Definition
57	Prepare patients and equipment for medical procedures	Prepares patients for medical procedures by following prescribed rules and directions. Prepares medical or dental treatment areas for use by laying out instruments and equipment. Cleans equipment and area for future use.
58	Provide medical treatment	Provides medical treatment to Soldiers in the field or in medical or dental clinics, or administers veterinary treatment to animals (e.g., administers injections, takes blood pressure, changes sterile dressings). (Does not include performing basic first aid.)
59	Schedule patients and medical services	Schedules and provides routine information to persons seeking medical, dental, or counseling services.
60	Provide counseling and other interpersonal interventions	Counsels individuals and groups (e.g., families) on personal issues and relationship problems in a clinical, non-supervisory setting. (Does not include coaching and counseling Soldiers on performance-based issues.)
61	Perform laboratory procedures	Prepares and handles samples for laboratory tests (e.g., medical, chemical, biological). Conducts various types of laboratory tests following prescribed protocols and procedures. Files and reports results.
62	Collect and analyze weather and environmental data	Collects data and information on weather and environmental conditions. Analyzes their effects on tactical operations.
63	Conduct land surveys	Surveys terrain to determine elevations, azimuths, and distances of terrain features. Records information.
64	Deliver presentations	Makes formal presentations (e.g., briefings, radio and television broadcasts).
65	Reproduce printed materials	Reproduces printed materials using duplicating machines (e.g., electronic copiers, printing presses). Collates and binds materials using various types of bindery equipment.
66	Demonstrate military presence	Presents a positive and professional image of self and the Army even when off duty. Maintains proper military appearance. Sets the precedent for other Soldiers to follow.
67	Maintain physical fitness	Meets Army standards for weight, physical fitness, and strength. Maintains health (e.g., dental hygiene) and fitness to meet requirements, to handle the physical demands of the daily job, and to endure the stress of combat.
68	Manage own duties and responsibilities	Manages own responsibilities (e.g., work assignments, personal finances, family, and personal well being), and appears on duty prepared for work. Sets goals, makes plans, and critically evaluates own performance. Works effectively without direct supervision but seeks help when appropriate.
69	Demonstrate extra effort and personal initiative on the job	Demonstrates high effort in completing work. Takes independent action when necessary. Seeks out and willingly accepts responsibility and additional challenging assignments. Persists in carrying out difficult assignments and responsibilities.
70	Manage own professional development	Develops job-related skills, devoting time off-duty to study and practice important job-related skills. Takes on additional job duties and responsibilities to prepare for promotion and actively seeks out opportunities for self-improvement. Keeps up-to-date technically.

Major Duty	Definition
71 Demonstrate personal integrity	Maintains high ethical standards. Does not succumb to peer pressure to commit prohibited, harmful, or questionable acts. Voluntarily reports thefts, misconduct, and any other violations of military order and discipline. Understands and accepts the basic values of the Army and acts accordingly.
72 Exhibit self-control	Controls personal behavior. Does not engage in negative behaviors, such as alcohol and substance abuse at work. Meets financial obligations consistently, displays emotional maturity, and does not allow personal matters to interfere with professional duties and obligations.
73 Follow orders and rules	Understands and carries out orders relayed orally or in writing. Displays respect for authority. Adheres to regulations, policies, and procedures while completing assignments. Checks the behavior of others to ensure compliance.
74 Contribute to team tasks	Takes ownership for and completes assigned tasks for team according to committed timelines. Demonstrates effort toward team goals. Does not pass work off to others or take shortcuts that compromise quality.
75 Direct peers and individual team members	Helps to define goals and organize and prioritize tasks for peers and individual team members. Generates plans and strategies for task completion, identifies resources needed to meet team goals, and shares resources or guides individual team members to resources to help complete their tasks.
76 Support peers and individual team members	Provides social support and empathy, offers verbal encouragement and acts respectfully towards peers and team members, especially when tasks or situations are difficult or demanding. Facilitates cohesion and effective working relationships between team members by acting honestly, communicating openly and helping to manage or resolve conflicts. Does not embarrass team members in front of others, act impatiently, or blame others.
77 Train peers and individual team members	Shares information with peers and individual team members, provides task explanations and demonstrations, answers questions, and gives timely and constructive feedback. Does not withhold information about team-related tasks.
78 Help peers and individual team members	Fills in or covers for peers or individual team members who are overwhelmed or absent. Rearranges own schedule and demonstrates flexibility to help other peers or individual team members. Puts in extra time and effort to help peers and team members without being asked and without complaining. Does not engage in off-task activities when other team members could use help.
79 Monitor peer and individual team member performance	Observes and is knowledgeable about the performance of peers or other team members. Pays attention to what peers and individual team members are doing. Evaluates progress of self and others and recognizes when team members may need help.
80 Monitor team performance	Pays attention to the team's situation, including relevant conditions, procedures, policies, resources, systems, equipment, technology, and level of team accomplishment. Notices and identifies team-relevant problems and obstacles.
81 Contribute to team planning	Helps in identifying alternative solutions, strategies, or options for dealing with problems, obstacles, or decisions. Helps in evaluating alternative courses of action, and takes preventive measures to avoid future problems.

	Major Duty	Definition
82	Contribute to team coordination	Contributes to and encourages discussion of work distribution, workload balance, potential workload problems, and the sequencing of team members activities. Coordinates own task activities with other team members. Does not make unnecessary requests or overload other team members.
83	Plan and organize operations/missions and team tasks	Plans major operations or team tasks prior to their actual execution in field or workplace. Translates goals and objectives into tasks and activities. Forecasts possible problems for the platoon/squad/team and develops strategies for addressing these problems. Organizes and prioritizes work.
84	Direct and motivate individual Soldiers	Provides guidance and direction to individual Soldiers. Motivates Soldiers by providing them with recognition, encouragement, constructive criticism, and other feedback as appropriate. Helps to set goals and maintains performance standards for Soldiers. Monitors and counsels Soldiers on specific performance or personal problems, as needed.
85	Train and coach Soldiers	Trains, instructs, and coaches Soldiers on how to complete technical job tasks. Assists Soldiers in improving their technical job skills/proficiency.
86	Communicate information to Soldiers, peers, and superiors	Keeps Soldiers, superiors, and others informed about factors and issues affecting them. Obtains and then passes on information to those who should know.
87	Administer personnel actions and procedures	Completes performance appraisals. Makes or recommends various personnel actions. Keeps and maintains adequate records. Follows standard operating procedures.
88	Manage and monitor operations/missions and team tasks	Keeps an operation going once it has been initiated. Checks to make sure that Soldiers are carrying out their duties properly. Makes sure they have the right equipment. Monitors or evaluates the status of equipment readiness.
89	Direct and lead platoons/squads/teams	Directs and leads platoon/squad/team activities. Assigns NCOs and Soldiers duties and responsibilities for completing platoon/squad/team tasks. Coordinates the actions of squads/teams within unit and those of individual Soldiers.
90	Model correct behavior to Soldiers	Models the correct performance behavior to Soldiers, whether it be technical task performance under adverse conditions or exhibiting appropriate military bearing.
91	Support individual Soldiers	Demonstrates personal concern for Soldiers. Backs up and supports Soldiers as appropriate. Looks out for their welfare.
92	Build and manage platoon/squad/team cohesion	Builds and manages platoon/squad/team cohesion. Manages and resolves internal conflict among team members. Promotes and sustains team morale.
93	Engage and negotiate with host nationals and local leaders.	Interacts and meets with host nationals and local leaders (e.g., tribal, police chiefs) to obtain information, handle complaints, settle disputes, and resolve grievances between and among host nationals. Negotiates with host nationals to resolve conflicts with U.S. forces and to secure their support for U.S. military operations.
94	Coordinate with other units and non-Army personnel	Coordinates with other units and non-Army personnel (e.g., contractors, host nation forces) before, during, and after operations for support and equipment. Shares information on status, position, and actions with other units and non-Army personnel, as needed.